# POPE FRANCIS (1936-)

*The prophet Joel once promised: "Your old men shall dream dreams, and your young men will have visions" (3:1). The future of the world depends on this covenant between young and old. Who, if not the young, can take the dreams of the elderly and make them come true? Dreams are thus intertwined with memory. [...] Without memory, however, we will never be able to build; without a foundation, we can never build a house. Never. And the foundation of life is memory.*

*-The First World Day for Grandparents and the Elderly, July 2021.*

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## Laudato si'
## Chapter III: The Human Roots of the Ecological Crisis

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101. It would hardly be helpful to describe symptoms without acknowledging the human origins of the ecological crisis. A certain way of understanding human life and activity has gone awry, to the serious detriment of the world around us. Should we not pause and consider this? At this stage, I propose that we focus on the dominant technocratic paradigm and the place of human beings and of human action in the world.

### I. TECHNOLOGY: CREATIVITY AND POWER

102. Humanity has entered a new era in which our technical prowess has brought us to a crossroads. We are the beneficiaries of two centuries of enormous waves of change: steam engines, railways, the telegraph, electricity, automobiles, aeroplanes, chemical industries, modern medicine, information technology and, more recently, the digital revolution, robotics, biotechnologies and nanotechnologies. It is right to rejoice in these advances and to be excited by the immense possibilities which they continue to open up before us, for "science and technology are wonderful products of a God-given human creativity".[1] The modification of nature for useful purposes has distinguished the human family from the beginning; technology itself "expresses the inner tension that impels man gradually to overcome material limitations".[2] Technology has remedied countless evils which used to harm and limit human beings. How can we not feel gratitude and appreciation for this progress, especially in the fields of medicine, engineering and communications? How could we not acknowledge the work of many scientists and engineers who have provided alternatives to make development sustainable?

103. Technoscience, when well directed, can produce important means of improving the quality of human life, from useful domestic appliances to great transportation systems, bridges, buildings and public spaces. It can also produce art and enable men and women immersed in the material world to “leap” into the world of beauty. Who can deny the beauty of an aircraft or a skyscraper? Valuable works of art and music now make use of new technologies. So, in the beauty intended by the one who uses new technical instruments and in the contemplation of such beauty, a quantum leap occurs, resulting in a fulfilment which is uniquely human.

104. Yet it must also be recognized that nuclear energy, biotechnology, information technology, knowledge of our DNA, and many other abilities which we have acquired, have given us tremendous power. More precisely, they have given those with the knowledge, and especially the economic resources to use them, an impressive dominance over the whole of humanity and the entire world. Never has humanity had such power over itself, yet nothing ensures that it will be used wisely, particularly when we consider how it is currently being used. We need but think of the nuclear bombs dropped in the middle of the twentieth century, or the array of technology which Nazism, Communism and other totalitarian regimes have employed to kill millions of people, to say nothing of the increasingly deadly arsenal of weapons available for modern warfare. In whose hands does all this power lie, or will it eventually end up? It is extremely risky for a small part of humanity to have it.

105. There is a tendency to believe that every increase in power means “an increase of ‘progress’ itself”, an advance in “security, usefulness, welfare and vigour; …an assimilation of new values into the stream of culture”,[3] as if reality, goodness and truth automatically flow from technological and economic power as such. The fact is that “contemporary man has not been trained to use power well”,[4] because our immense technological development has not been accompanied by a development in human responsibility, values and conscience. Each age tends to have only a meagre awareness of its own limitations. It is possible that we do not grasp the gravity of the challenges now before us. “The risk is growing day by day that man will not use his power as he should”; in effect, “power is never considered in terms of the responsibility of choice which is inherent in freedom” since its “only norms are taken from alleged necessity, from either utility or security”.[5] But human beings are not completely autonomous. Our freedom fades when it is handed over to the blind forces of the unconscious, of immediate needs, of self-interest, and of violence. In this sense, we stand naked and exposed in the face of our ever-increasing power, lacking the wherewithal to control it. We have certain superficial mechanisms, but we cannot claim to have a sound ethics, a culture and spirituality genuinely capable of setting limits and teaching clear-minded self-restraint.

## II. THE GLOBALIZATION OF THE TECHNOCRATIC PARADIGM

106. The basic problem goes even deeper: it is the way that humanity has taken up technology and its development *according to an undifferentiated and one-dimensional paradigm*. This paradigm exalts the concept of a subject who, using logical and rational procedures, progressively approaches and gains control over an external object. This subject makes every effort to establish the scientific and experimental method, which in itself is already a technique of possession, mastery and transformation. It is as if the subject were to find itself in the presence of something formless, completely open to manipulation. Men and women have constantly intervened in nature, but for a long time this meant being in tune with and respecting the possibilities offered by the things themselves. It was a matter of receiving what nature itself allowed, as if from its own hand. Now, by contrast, we are the ones to lay our hands on things, attempting to extract everything possible from them while frequently ignoring or forgetting the reality in front of us. Human beings and material objects no longer extend a friendly hand to one another; the relationship has become confrontational. This has made it easy to accept the idea of infinite or unlimited growth, which proves so attractive to economists, financiers and experts in technology. It is based on the lie that there is an infinite supply of the earth's goods, and this leads to the planet being squeezed dry beyond every limit. It is the false notion that "an infinite quantity of energy and resources are available, that it is possible to renew them quickly, and that the negative effects of the exploitation of the natural order can be easily absorbed".[6]

107. It can be said that many problems of today's world stem from the tendency, at times unconscious, to make the method and aims of science and technology an epistemological paradigm which shapes the lives of individuals and the workings of society. The effects of imposing this model on reality as a whole, human and social, are seen in the deterioration of the environment, but this is just one sign of a reductionism which affects every aspect of human and social life. We have to accept that technological products are not neutral, for they create a framework which ends up conditioning lifestyles and shaping social possibilities along the lines dictated by the interests of certain powerful groups. Decisions which may seem purely instrumental are in reality decisions about the kind of society we want to build.

108. The idea of promoting a different cultural paradigm and employing technology as a mere instrument is nowadays inconceivable. The technological paradigm has become so dominant that it would be difficult to do without its resources and even more difficult to utilize them without being dominated by their internal logic. It has become countercultural to choose a lifestyle whose goals are even partly independent of technology, of its costs and its power to globalize and make us all the same. Technology tends to absorb everything into its ironclad logic, and those who are surrounded with technology "know full well that it moves forward in the final analysis neither for profit nor for the well-being of the human race", that "in the most radical

sense of the term power is its motive – a lordship over all".[7] As a result, "man seizes hold of the naked elements of both nature and human nature".[8] Our capacity to make decisions, a more genuine freedom and the space for each one's alternative creativity are diminished.

109. The technocratic paradigm also tends to dominate economic and political life. The economy accepts every advance in technology with a view to profit, without concern for its potentially negative impact on human beings. Finance overwhelms the real economy. The lessons of the global financial crisis have not been assimilated, and we are learning all too slowly the lessons of environmental deterioration. Some circles maintain that current economics and technology will solve all environmental problems, and argue, in popular and non-technical terms, that the problems of global hunger and poverty will be resolved simply by market growth. They are less concerned with certain economic theories which today scarcely anybody dares defend, than with their actual operation in the functioning of the economy. They may not affirm such theories with words, but nonetheless support them with their deeds by showing no interest in more balanced levels of production, a better distribution of wealth, concern for the environment and the rights of future generations. Their behaviour shows that for them maximizing profits is enough. Yet by itself the market cannot guarantee integral human development and social inclusion.[9] At the same time, we have "a sort of 'superdevelopment' of a wasteful and consumerist kind which forms an unacceptable contrast with the ongoing situations of dehumanizing deprivation",[10] while we are all too slow in developing economic institutions and social initiatives which can give the poor regular access to basic resources. We fail to see the deepest roots of our present failures, which have to do with the direction, goals, meaning and social implications of technological and economic growth.

110. The specialization which belongs to technology makes it difficult to see the larger picture. The fragmentation of knowledge proves helpful for concrete applications, and yet it often leads to a loss of appreciation for the whole, for the relationships between things, and for the broader horizon, which then becomes irrelevant. This very fact makes it hard to find adequate ways of solving the more complex problems of today's world, particularly those regarding the environment and the poor; these problems cannot be dealt with from a single perspective or from a single set of interests. A science which would offer solutions to the great issues would necessarily have to take into account the data generated by other fields of knowledge, including philosophy and social ethics; but this is a difficult habit to acquire today. Nor are there genuine ethical horizons to which one can appeal. Life gradually becomes a surrender to situations conditioned by technology, itself viewed as the principal key to the meaning of existence. In the concrete situation confronting us, there are a number of symptoms which point to what is wrong, such as environmental degradation, anxiety, a loss of the purpose of life and of community living. Once more we see that "realities are more important than ideas".[11]

111. Ecological culture cannot be reduced to a series of urgent and partial responses to the immediate problems of pollution, environmental decay and the depletion of natural resources. There needs to be a distinctive way of looking at things, a way of thinking, policies, an educational programme, a lifestyle and a spirituality which together generate resistance to the assault of the technocratic paradigm. Otherwise, even the best ecological initiatives can find themselves caught up in the same globalized logic. To seek only a technical remedy to each environmental problem which comes up is to separate what is in reality interconnected and to mask the true and deepest problems of the global system.

112. Yet we can once more broaden our vision. We have the freedom needed to limit and direct technology; we can put it at the service of another type of progress, one which is healthier, more human, more social, more integral. Liberation from the dominant technocratic paradigm does in fact happen sometimes, for example, when cooperatives of small producers adopt less polluting means of production, and opt for a non-consumerist model of life, recreation and community. Or when technology is directed primarily to resolving people's concrete problems, truly helping them live with more dignity and less suffering. Or indeed when the desire to create and contemplate beauty manages to overcome reductionism through a kind of salvation which occurs in beauty and in those who behold it. An authentic humanity, calling for a new synthesis, seems to dwell in the midst of our technological culture, almost unnoticed, like a mist seeping gently beneath a closed door. Will the promise last, in spite of everything, with all that is authentic rising up in stubborn resistance?

113. There is also the fact that people no longer seem to believe in a happy future; they no longer have blind trust in a better tomorrow based on the present state of the world and our technical abilities. There is a growing awareness that scientific and technological progress cannot be equated with the progress of humanity and history, a growing sense that the way to a better future lies elsewhere. This is not to reject the possibilities which technology continues to offer us. But humanity has changed profoundly, and the accumulation of constant novelties exalts a superficiality which pulls us in one direction. It becomes difficult to pause and recover depth in life. If architecture reflects the spirit of an age, our megastructures and drab apartment blocks express the spirit of globalized technology, where a constant flood of new products coexists with a tedious monotony. Let us refuse to resign ourselves to this, and continue to wonder about the purpose and meaning of everything. Otherwise we would simply legitimate the present situation and need new forms of escapism to help us endure the emptiness.

114. All of this shows the urgent need for us to move forward in a bold cultural revolution. Science and technology are not neutral; from the beginning to the end of a process, various intentions and possibilities are in play and can take on distinct shapes. Nobody is suggesting a return to the Stone Age, but we do need to slow down

and look at reality in a different way, to appropriate the positive and sustainable progress which has been made, but also to recover the values and the great goals swept away by our unrestrained delusions of grandeur.

## III. THE CRISIS AND EFFECTS OF MODERN ANTHROPOCENTRISM

115. Modern anthropocentrism has paradoxically ended up prizing technical thought over reality, since "the technological mind sees nature as an insensate order, as a cold body of facts, as a mere 'given', as an object of utility, as raw material to be hammered into useful shape; it views the cosmos similarly as a mere 'space' into which objects can be thrown with complete indifference".[12] The intrinsic dignity of the world is thus compromised. When human beings fail to find their true place in this world, they misunderstand themselves and end up acting against themselves: "Not only has God given the earth to man, who must use it with respect for the original good purpose for which it was given, but, man too is God's gift to man. He must therefore respect the natural and moral structure with which he has been endowed".[13]

116. Modernity has been marked by an excessive anthropocentrism which today, under another guise, continues to stand in the way of shared understanding and of any effort to strengthen social bonds. The time has come to pay renewed attention to reality and the limits it imposes; this in turn is the condition for a more sound and fruitful development of individuals and society. An inadequate presentation of Christian anthropology gave rise to a wrong understanding of the relationship between human beings and the world. Often, what was handed on was a Promethean vision of mastery over the world, which gave the impression that the protection of nature was something that only the faint-hearted cared about. Instead, our "dominion" over the universe should be understood more properly in the sense of responsible stewardship.[14]

117. Neglecting to monitor the harm done to nature and the environmental impact of our decisions is only the most striking sign of a disregard for the message contained in the structures of nature itself. When we fail to acknowledge as part of reality the worth of a poor person, a human embryo, a person with disabilities – to offer just a few examples – it becomes difficult to hear the cry of nature itself; everything is connected. Once the human being declares independence from reality and behaves with absolute dominion, the very foundations of our life begin to crumble, for "instead of carrying out his role as a cooperator with God in the work of creation, man sets himself up in place of God and thus ends up provoking a rebellion on the part of nature".[15]

118. This situation has led to a constant schizophrenia, wherein a technocracy which sees no intrinsic value in lesser beings coexists with the other extreme, which sees no special value in human beings. But one cannot prescind from humanity. There can be no renewal of our relationship with nature without a renewal of humanity itself. There can be no ecology without an adequate anthropology. When the human person is considered as simply one being among others, the product of chance or physical

determinism, then “our overall sense of responsibility wanes”.[16] A misguided anthropocentrism need not necessarily yield to “biocentrism”, for that would entail adding yet another imbalance, failing to solve present problems and adding new ones. Human beings cannot be expected to feel responsibility for the world unless, at the same time, their unique capacities of knowledge, will, freedom and responsibility are recognized and valued.

119. Nor must the critique of a misguided anthropocentrism underestimate the importance of interpersonal relations. If the present ecological crisis is one small sign of the ethical, cultural and spiritual crisis of modernity, we cannot presume to heal our relationship with nature and the environment without healing all fundamental human relationships. Christian thought sees human beings as possessing a particular dignity above other creatures; it thus inculcates esteem for each person and respect for others. Our openness to others, each of whom is a “thou” capable of knowing, loving and entering into dialogue, remains the source of our nobility as human persons. A correct relationship with the created world demands that we not weaken this social dimension of openness to others, much less the transcendent dimension of our openness to the “Thou” of God. Our relationship with the environment can never be isolated from our relationship with others and with God. Otherwise, it would be nothing more than romantic individualism dressed up in ecological garb, locking us into a stifling immanence.

120. Since everything is interrelated, concern for the protection of nature is also incompatible with the justification of abortion. How can we genuinely teach the importance of concern for other vulnerable beings, however troublesome or inconvenient they may be, if we fail to protect a human embryo, even when its presence is uncomfortable and creates difficulties? “If personal and social sensitivity towards the acceptance of the new life is lost, then other forms of acceptance that are valuable for society also wither away”.[17]

121. We need to develop a new synthesis capable of overcoming the false arguments of recent centuries. Christianity, in fidelity to its own identity and the rich deposit of truth which it has received from Jesus Christ, continues to reflect on these issues in fruitful dialogue with changing historical situations. In doing so, it reveals its eternal newness.[18]

*Practical relativism*

122. A misguided anthropocentrism leads to a misguided lifestyle. In the Apostolic Exhortation *Evangelii Gaudium,* I noted that the practical relativism typical of our age is “even more dangerous than doctrinal relativism”.[19] When human beings place themselves at the centre, they give absolute priority to immediate convenience and all else becomes relative. Hence we should not be surprised to find, in conjunction with the omnipresent technocratic paradigm and the cult of unlimited human power, the rise

of a relativism which sees everything as irrelevant unless it serves one's own immediate interests. There is a logic in all this whereby different attitudes can feed on one another, leading to environmental degradation and social decay.

123. The culture of relativism is the same disorder which drives one person to take advantage of another, to treat others as mere objects, imposing forced labour on them or enslaving them to pay their debts. The same kind of thinking leads to the sexual exploitation of children and abandonment of the elderly who no longer serve our interests. It is also the mindset of those who say: Let us allow the invisible forces of the market to regulate the economy, and consider their impact on society and nature as collateral damage. In the absence of objective truths or sound principles other than the satisfaction of our own desires and immediate needs, what limits can be placed on human trafficking, organized crime, the drug trade, commerce in blood diamonds and the fur of endangered species? Is it not the same relativistic logic which justifies buying the organs of the poor for resale or use in experimentation, or eliminating children because they are not what their parents wanted? This same "use and throw away" logic generates so much waste, because of the disordered desire to consume more than what is really necessary. We should not think that political efforts or the force of law will be sufficient to prevent actions which affect the environment because, when the culture itself is corrupt and objective truth and universally valid principles are no longer upheld, then laws can only be seen as arbitrary impositions or obstacles to be avoided.

*The need to protect employment*

124. Any approach to an integral ecology, which by definition does not exclude human beings, needs to take account of the value of labour, as Saint John Paul II wisely noted in his Encyclical *Laborem Exercens*. According to the biblical account of creation, God placed man and woman in the garden he had created (cf. *Gen* 2:15) not only to preserve it ("keep") but also to make it fruitful ("till"). Labourers and craftsmen thus "maintain the fabric of the world" (*Sir* 38:34). Developing the created world in a prudent way is the best way of caring for it, as this means that we ourselves become the instrument used by God to bring out the potential which he himself inscribed in things: "The Lord created medicines out of the earth, and a sensible man will not despise them" (*Sir* 38:4).

125. If we reflect on the proper relationship between human beings and the world around us, we see the need for a correct understanding of work; if we talk about the relationship between human beings and things, the question arises as to the meaning and purpose of all human activity. This has to do not only with manual or agricultural labour but with any activity involving a modification of existing reality, from producing a social report to the design of a technological development. Underlying every form of work is a concept of the relationship which we can and must have with what is other

than ourselves. Together with the awe-filled contemplation of creation which we find in Saint Francis of Assisi, the Christian spiritual tradition has also developed a rich and balanced understanding of the meaning of work, as, for example, in the life of Blessed Charles de Foucauld and his followers.

126. We can also look to the great tradition of monasticism. Originally, it was a kind of flight from the world, an escape from the decadence of the cities. The monks sought the desert, convinced that it was the best place for encountering the presence of God. Later, Saint Benedict of Norcia proposed that his monks live in community, combining prayer and spiritual reading with manual labour (*ora et labora*). Seeing manual labour as spiritually meaningful proved revolutionary. Personal growth and sanctification came to be sought in the interplay of recollection and work. This way of experiencing work makes us more protective and respectful of the environment; it imbues our relationship to the world with a healthy sobriety.

127. We are convinced that “man is the source, the focus and the aim of all economic and social life”.[20] Nonetheless, once our human capacity for contemplation and reverence is impaired, it becomes easy for the meaning of work to be misunderstood.[21] We need to remember that men and women have “the capacity to improve their lot, to further their moral growth and to develop their spiritual endowments”.[22] Work should be the setting for this rich personal growth, where many aspects of life enter into play: creativity, planning for the future, developing our talents, living out our values, relating to others, giving glory to God. It follows that, in the reality of today’s global society, it is essential that “we continue to prioritize the goal of access to steady employment for everyone”,[23] no matter the limited interests of business and dubious economic reasoning.

128. We were created with a vocation to work. The goal should not be that technological progress increasingly replace human work, for this would be detrimental to humanity. Work is a necessity, part of the meaning of life on this earth, a path to growth, human development and personal fulfilment. Helping the poor financially must always be a provisional solution in the face of pressing needs. The broader objective should always be to allow them a dignified life through work. Yet the orientation of the economy has favoured a kind of technological progress in which the costs of production are reduced by laying off workers and replacing them with machines. This is yet another way in which we can end up working against ourselves. The loss of jobs also has a negative impact on the economy “through the progressive erosion of social capital: the network of relationships of trust, dependability, and respect for rules, all of which are indispensable for any form of civil coexistence”.[24] In other words, “human costs always include economic costs, and economic dysfunctions always involve human costs”.[25] To stop investing in people, in order to gain greater short-term financial gain, is bad business for society.

129. In order to continue providing employment, it is imperative to promote an economy which favours productive diversity and business creativity. For example, there is a great variety of small-scale food production systems which feed the greater part of the world's peoples, using a modest amount of land and producing less waste, be it in small agricultural parcels, in orchards and gardens, hunting and wild harvesting or local fishing. Economies of scale, especially in the agricultural sector, end up forcing smallholders to sell their land or to abandon their traditional crops. Their attempts to move to other, more diversified, means of production prove fruitless because of the difficulty of linkage with regional and global markets, or because the infrastructure for sales and transport is geared to larger businesses. Civil authorities have the right and duty to adopt clear and firm measures in support of small producers and differentiated production. To ensure economic freedom from which all can effectively benefit, restraints occasionally have to be imposed on those possessing greater resources and financial power. To claim economic freedom while real conditions bar many people from actual access to it, and while possibilities for employment continue to shrink, is to practise a doublespeak which brings politics into disrepute. Business is a noble vocation, directed to producing wealth and improving our world. It can be a fruitful source of prosperity for the areas in which it operates, especially if it sees the creation of jobs as an essential part of its service to the common good.

*New biological technologies*

130. In the philosophical and theological vision of the human being and of creation which I have presented, it is clear that the human person, endowed with reason and knowledge, is not an external factor to be excluded. While human intervention on plants and animals is permissible when it pertains to the necessities of human life, the *Catechism of the Catholic Church* teaches that experimentation on animals is morally acceptable only "if it remains within reasonable limits [and] contributes to caring for or saving human lives".[26] The *Catechism* firmly states that human power has limits and that "it is contrary to human dignity to cause animals to suffer or die needlessly".[27] All such use and experimentation "requires a religious respect for the integrity of creation".[28]

131. Here I would recall the balanced position of Saint John Paul II, who stressed the benefits of scientific and technological progress as evidence of "the nobility of the human vocation to participate responsibly in God's creative action", while also noting that "we cannot interfere in one area of the ecosystem without paying due attention to the consequences of such interference in other areas".[29] He made it clear that the Church values the benefits which result "from the study and applications of molecular biology, supplemented by other disciplines such as genetics, and its technological application in agriculture and industry".[30] But he also pointed out that this should not lead to "indiscriminate genetic manipulation"[31] which ignores the negative effects of such interventions. Human creativity cannot be suppressed. If an artist cannot be

stopped from using his or her creativity, neither should those who possess particular gifts for the advancement of science and technology be prevented from using their God-given talents for the service of others. We need constantly to rethink the goals, effects, overall context and ethical limits of this human activity, which is a form of power involving considerable risks.

132. This, then, is the correct framework for any reflection concerning human intervention on plants and animals, which at present includes genetic manipulation by biotechnology for the sake of exploiting the potential present in material reality. The respect owed by faith to reason calls for close attention to what the biological sciences, through research uninfluenced by economic interests, can teach us about biological structures, their possibilities and their mutations. Any legitimate intervention will act on nature only in order "to favour its development in its own line, that of creation, as intended by God".[32]

133. It is difficult to make a general judgement about genetic modification (GM), whether vegetable or animal, medical or agricultural, since these vary greatly among themselves and call for specific considerations. The risks involved are not always due to the techniques used, but rather to their improper or excessive application. Genetic mutations, in fact, have often been, and continue to be, caused by nature itself. Nor are mutations caused by human intervention a modern phenomenon. The domestication of animals, the crossbreeding of species and other older and universally accepted practices can be mentioned as examples. We need but recall that scientific developments in GM cereals began with the observation of natural bacteria which spontaneously modified plant genomes. In nature, however, this process is slow and cannot be compared to the fast pace induced by contemporary technological advances, even when the latter build upon several centuries of scientific progress.

134. Although no conclusive proof exists that GM cereals may be harmful to human beings, and in some regions their use has brought about economic growth which has helped to resolve problems, there remain a number of significant difficulties which should not be underestimated. In many places, following the introduction of these crops, productive land is concentrated in the hands of a few owners due to "the progressive disappearance of small producers, who, as a consequence of the loss of the exploited lands, are obliged to withdraw from direct production".[33] The most vulnerable of these become temporary labourers, and many rural workers end up moving to poverty-stricken urban areas. The expansion of these crops has the effect of destroying the complex network of ecosystems, diminishing the diversity of production and affecting regional economies, now and in the future. In various countries, we see an expansion of oligopolies for the production of cereals and other products needed for their cultivation. This dependency would be aggravated were the production of infertile seeds to be considered; the effect would be to force farmers to purchase them from larger producers.

135. Certainly, these issues require constant attention and a concern for their ethical implications. A broad, responsible scientific and social debate needs to take place, one capable of considering all the available information and of calling things by their name. It sometimes happens that complete information is not put on the table; a selection is made on the basis of particular interests, be they politico-economic or ideological. This makes it difficult to reach a balanced and prudent judgement on different questions, one which takes into account all the pertinent variables. Discussions are needed in which all those directly or indirectly affected (farmers, consumers, civil authorities, scientists, seed producers, people living near fumigated fields, and others) can make known their problems and concerns, and have access to adequate and reliable information in order to make decisions for the common good, present and future. This is a complex environmental issue; it calls for a comprehensive approach which would require, at the very least, greater efforts to finance various lines of independent, interdisciplinary research capable of shedding new light on the problem.

136. On the other hand, it is troubling that, when some ecological movements defend the integrity of the environment, rightly demanding that certain limits be imposed on scientific research, they sometimes fail to apply those same principles to human life. There is a tendency to justify transgressing all boundaries when experimentation is carried out on living human embryos. We forget that the inalienable worth of a human being transcends his or her degree of development. In the same way, when technology disregards the great ethical principles, it ends up considering any practice whatsoever as licit. As we have seen in this chapter, a technology severed from ethics will not easily be able to limit its own power.

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[1] JOHN PAUL II, *Address to Scientists and Representatives of the United Nations University,* Hiroshima (25 February 1981), 3: AAS 73 (1981), 422.
[2] BENEDICT XVI, Encyclical Letter *Caritas in Veritate* (29 June 2009), 69: AAS 101 (2009), 702.
[3] ROMANO GUARDINI, *Das Ende der Neuzeit*, 9th ed., Würzburg, 1965, 87 (English: *The End of the Modern World*, Wilmington, 1998, 82).
[4] Ibid.
[5] Ibid., 87-88 (*The End of the Modern World,* 83).
[6] PONTIFICAL COUNCIL FOR JUSTICE AND PEACE, *Compendium of the Social Doctrine of the Church*, 462.
[7] ROMANO GUARDINI, *Das Ende der Neuzeit*, 63-64 (*The End of the Modern World*, 56).
[8] Ibid., 64 (*The End of the Modern World*, 56).
[9] Cf. BENEDICT XVI, Encyclical Letter *Caritas in Veritate* (29 June 2009), 35: AAS 101 (2009), 671.
[10] Ibid., 22: p. 657.
[11] Apostolic Exhortation *Evangelii Gaudium* (24 November 2013), 231: AAS 105 (2013), 1114.
[12] ROMANO GUARDINI, *Das Ende der Neuzeit*, 63 (*The End of the Modern World*, 55).
[13] JOHN PAUL II, Encyclical Letter *Centesimus Annus* (1 May 1991), 38: AAS 83 (1991), 841.
[14] Cf. *Love for Creation. An Asian Response to the Ecological Crisis*, Declaration of the Colloquium sponsored by the Federation of Asian Bishops' Conferences (Tagaytay, 31 January-5 February 1993), 3.3.2.

[15] JOHN PAUL II, Encyclical Letter *Centesimus Annus* (1 May 1991), 37: AAS 83 (1991), 840.
[16] BENEDICT XVI, *Message for the 2010 World Day of Peace*, 2: AAS 102 (2010), 41.
[17] ID., Encyclical Letter *Caritas in Veritate* (29 June 2009), 28: AAS 101 (2009), 663.
[18] Cf. VINCENT OF LERINS, *Commonitorium Primum*, ch. 23: PL 50, 688: "Ut annis scilicet consolidetur, dilatetur tempore, sublimetur aetate".
[19] No. 80: AAS 105 (2013), 1053.
[20] SECOND VATICAN ECUMENICAL COUNCIL, Pastoral Constitution on the Church in the Modern World *Gaudium et Spes*, 63.
[21] Cf. JOHN PAUL II, Encyclical Letter *Centesimus Annus* (1 May 1991), 37: AAS 83 (1991), 840.
[22] PAUL VI, Encyclical Letter *Populorum Progressio* (26 March 1967), 34: AAS 59 (1967), 274.
[23] BENEDICT XVI, Encyclical Letter *Caritas in Veritate* (29 June 2009), 32: AAS 101 (2009), 666.
[24] Ibid.
[25] Ibid.
[26] *Catechism of the Catholic Church*, 2417.
[27] Ibid., 2418.
[28] Ibid., 2415.
[29] *Message for the 1990 World Day of Peace*, 6: AAS 82 (1990), 150.
[30] *Address to the Pontifical Academy of Sciences* (3 October 1981), 3: *Insegnamenti* 4/2 (1981), 333.
[31] *Message for the 1990 World Day of Peace*, 7: AAS 82 (1990), 151.
[32] JOHN PAUL II, *Address to the 35th General Assembly of the World Medical Association* (29 October 1983), 6: AAS 76 (1984), 394.
[33] EPISCOPAL COMMISSION FOR PASTORAL CONCERNS IN ARGENTINA, *Una tierra para todos* (June 2005), 19.

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**CONTEMPLATION**

What is Pope Francis asking us to do?
What has the Church done, so far, to answer his call?

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# Life Becomes History
# World Communications Day 2020

***"That you may tell your children and grandchildren" (Ex 10:2)***

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*I would like to devote this year's Message to the theme of storytelling, because I believe that, so as not to lose our bearings, we need to make our own the truth contained in good stories. Stories that build up, not tear down; stories that help us rediscover our roots and the strength needed to move forward together. Amid the cacophony of voices and messages that surround us, we need a human story that can speak of ourselves and of the beauty all around us. A narrative that can regard our world and its happenings with a tender gaze. A narrative that can tell us that we are part of a living and interconnected tapestry. A narrative that can reveal the interweaving of the threads which connect us to one another.*

## 1. Weaving stories

Human beings are storytellers. From childhood we hunger for stories just as we hunger for food. Stories influence our lives, whether in the form of fairy tales, novels, films, songs, news, even if we do not always realize it. Often we decide what is right or wrong based on characters and stories we have made our own. Stories leave their mark on us; they shape our convictions and our behaviour. They can help us understand and communicate who we are.

We are not just the only beings who need clothing to cover our vulnerability (cf. *Gen* 3: 21); we are also the only ones who need to be "clothed" with stories to protect our lives. We weave not only clothing, but also stories: indeed, the human capacity to "weave" (Latin *texere*) gives us not only the word *textile* but also *text*. The stories of different ages all have a common "loom": the thread of their narrative involves "heroes", including everyday heroes, who in following a dream confront difficult situations and combat evil, driven by a force that makes them courageous, the force of love. By immersing ourselves in stories, we can find reasons to heroically face the challenges of life.

Human beings are storytellers because we are engaged in a process of constant growth, discovering ourselves and becoming enriched in the tapestry of the days of our life. Yet since the very beginning, our story has been threatened: evil snakes its way through history.

## 2. Not all stories are good stories

"When you eat of it … you will be like God" (cf. *Gen* 3:4): the temptation of the serpent introduces into the fabric of history a knot difficult to undo. "If you possess, you will become, you will achieve…" This is the message whispered by those who even today use storytelling for purposes of exploitation. How many stories serve to lull us, convincing us that to be happy we continually need to gain, possess and consume. We may not even realize how greedy we have become for chatter and gossip, or how much violence and falsehood we are consuming. Often on communication platforms, instead of constructive stories which serve to strengthen social ties and the cultural fabric, we find destructive and provocative stories that wear down and break the fragile threads binding us together as a society. By patching together bits of unverified information, repeating banal and deceptively persuasive arguments, sending strident and hateful messages, we do not help to weave human history, but instead strip others of their dignity.

But whereas the stories employed for exploitation and power have a short lifespan, a good story can transcend the confines of space and time. Centuries later, it remains timely, for it nourishes life.

In an age when falsification is increasingly sophisticated, reaching exponential levels (as in *deepfake*), we need wisdom to be able to welcome and create beautiful, true and good stories. We need courage to reject false and evil stories. We need patience and discernment to rediscover stories that help us not to lose the thread amid today's many troubles. We need stories that reveal who we truly are, also in the untold heroism of everyday life.

### 3. The *Story of stories*

Sacred Scripture is a *Story of stories*. How many events, peoples and individuals it sets before us! It shows us from the very beginning a God who is both creator and narrator. Indeed, God speaks his word and things come into existence (cf. *Gen* 1). As narrator, God calls things into life, culminating in the creation of man and woman as his free dialogue partners, who make history alongside him. In one of the Psalms, the creature tells the creator: "For you formed my inward parts; you *knitted me together* in my mother's womb. I praise you, for I am fearfully and *wonderfully* made … My frame was not hidden from you, when I was being made in secret, intricately woven in the depths of the earth" (139:13-15). We are not born complete, but need to be constantly "woven", "knitted together". Life is given to us as an invitation to continue to weave the "wonderful" mystery that we are.

The Bible is thus the great love story between God and humanity. At its centre stands Jesus, whose own story brings to fulfilment both God's love for us and our love for God. Henceforth, in every generation, men and women are called to *recount and commit to memory* the most significant episodes of this *Story of stories*, those that best communicate its meaning.

The title of this year's Message is drawn from the Book of Exodus, a primordial biblical story in which God intervenes in the history of his people. When the enslaved children of Israel cry out to Him, God listens and remembers: "God remembered His covenant with Abraham, with Isaac and with Jacob. God saw the people of Israel – and God knew" (*Ex* 2: 24-25). God's memory brings liberation from oppression through a series of signs and wonders. The Lord then reveals to Moses the meaning of all these signs: "that you may tell in the hearing of your children and grandchildren… what signs I have done among them, that you may know that I am the Lord" (*Ex* 10:2). The Exodus experience teaches us that knowledge of the Lord is handed down from generation to generation mainly by telling the story of how he continues to make himself present. The God of life communicates with us through the story of life.

Jesus spoke of God not with abstract concepts, but with parables, brief stories taken from everyday life. At this point life becomes story and then, for the listener, story becomes life: the story becomes part of the life of those who listen to it, and it changes them.

The Gospels are also stories, and not by chance. While they tell us about Jesus, they are "performative"[1]; they conform us to Jesus. The Gospel asks the reader to share in the same faith in order to share in the same life. The Gospel of John tells us that the quintessential storyteller – the Word – himself becomes the story: "God's only Son, who is at the Father's side, has *made him known*" (*Jn* 1: 18). The original verb, *exegésato*, can be translated both as "revealed" and "recounted". God has become personally woven into our humanity, and so has given us a new way of weaving our stories.

### 4. An ever renewed story

The history of Christ is not a legacy from the past; it is our story, and always timely. It shows us that God was so deeply concerned for mankind, for our flesh and our history, to the point that he became man, flesh and history. It also tells us that no human stories are insignificant or paltry. Since God became story, every human story is, in a certain sense, a divine story. In the history of every person, the Father sees again the story of his Son who came down to earth. Every human story has an irrepressible dignity. Consequently, humanity deserves stories that are worthy of it, worthy of that dizzying and fascinating height to which Jesus elevated it.

"You" – Saint Paul wrote – "are a letter from Christ delivered by us, written not with ink but with the Spirit of the living God, not on tablets of stone but on tablets of human hearts" (*2 Cor* 3:3). The Holy Spirit, the love of God, writes within us. And as he writes within us, he establishes goodness in us and constantly reminds us of it. Indeed, to "re-mind" means to bring to mind, to "write" on the heart. By the power of the Holy Spirit, every story, even the most forgotten one, even the one that seems to be written with the most crooked lines, can become inspired, can be reborn as a masterpiece, and become an appendix to the Gospel. Like the *Confessions* of Augustine. Like *A Pilgrim's Journey* of Ignatius. Like *The Story of a Soul* of Saint Therese of the Child Jesus. Like *The Betrothed*, like *The Brothers Karamazov*. Like countless other stories, which have admirably scripted the encounter between God's freedom and that of man. Each of us knows different stories that have the fragrance of the Gospel, that have borne witness to the Love that transforms life. These stories cry out to be shared, recounted and brought to life in every age, in every language, in every medium.

### 5. A story that renews us

Our own story becomes part of every great story. As we read the Scriptures, the stories of the saints, and also those texts that have shed light on the human heart and its beauty, the Holy Spirit is free to write in our hearts, reviving our memory of what we are in God's eyes. When we remember the love that created and saved us, when we make love a part of our daily stories, when we weave the tapestry of our days with mercy, we are turning another page. We no longer remain tied to regrets and sadness, bound to an unhealthy memory that burdens our hearts; rather, by opening ourselves to others,

we open ourselves to the same vision of the great storyteller. Telling God our story is never useless: even if the record of events remains the same, the meaning and perspective are always changing. To tell our story to the Lord is to enter into his gaze of compassionate love for us and for others. We can recount to him the stories we live, bringing to him the people and the situations that fill our lives. With him we can re-weave the fabric of life, darning its rips and tears. How much we, all of us, need to do exactly this!

With the gaze of the great storyteller – the only one who has the ultimate point of view – we can then approach the other characters, our brothers and sisters, who are with us as actors in today's story. For no one is an extra on the world stage, and everyone's story is open to possible change. Even when we tell of evil, we can learn to leave room for redemption; in the midst of evil, we can also recognize the working of goodness and give it space.

So it is not a matter of simply telling stories as such, or of advertising ourselves, but rather of remembering who and what we are in God's eyes, bearing witness to what the Spirit writes in our hearts and revealing to everyone that his or her story contains marvellous things. In order to do this, let us entrust ourselves to a woman who knit together in her womb the humanity of God and, the Gospel tells us, wove together the events of her life. For the Virgin Mary "treasured all these things and pondered them in her heart" (*Lk* 2: 19). Let us ask for help from her, who knew how to untie the knots of life with the gentle strength of love:

*O Mary, woman and mother, you wove the divine Word in your womb, you recounted by your life the magnificent works of God.*

*Listen to our stories, hold them in your heart and make your own the stories that no one wants to hear.*

*Teach us to recognize the good thread that runs through history. Look at the tangled knots in our life that paralyze our memory. By your gentle hands, every knot can be untied.*

*Woman of the Spirit, mother of trust, inspire us too.*

*Help us build stories of peace, stories that point to the future. And show us the way to live them together.*

Rome, at Saint John Lateran, 24 January 2020, the Memorial of Saint Francis de Sales

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[1] Cf. Benedict XVI, Encyclical Letter *Spe Salvi*, 2: "The Christian message was not only 'informative' but 'performative'. That means: the Gospel is not merely a communication of things that can be known–it is one that makes things happen and is life-changing".

**CONTEMPLATION**

What is the difference between “advertising” ourselves and “remembering who and what we are”?

What knots paralyze your memory?
How can Our Lady help weave the story of your own life into the fabric of the Church?

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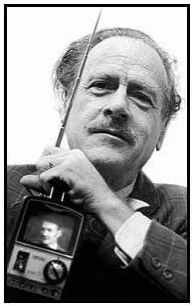
# HERBERT MARSHALL MCLUHAN (1911-1980)



A computer as a research and communication instrument could ***enhance*** retrieval, *obsolesce* mass library organization, ***retrieve*** the individual's encyclopedic function and ***flip*** into a private line to speedily tailored data of a saleable kind.

-Marshall McLuhan, 1978, *Euclidean Space to Outer Space*.

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## Another Man, Another Christian: In the Electric Age

*An interview with Fr. Pierre Babin, 1978*

**Pierre Babin:** Do you think that in the electric age Christian faith has to be approached in a new way?

**Marshall McLuhan:** A little over a year ago I read L'Eglise et moi (The Church and I), published by a French publisher. I was struck by one of his observations concerning catechism. Basically, the author said, we teach catechism as though we were trying to get people to swallow a nut without first breaking the shell. We can't taste the nut, only the shell. And, he added, that's what happens when you make children learn catechism by heart. It doesn't give them a taste for doctrine but only makes them swallow it.

Catechism is something that our TV generation can no longer tolerate, because - as a result of Gutenberg - it is basically a visual form. Young people have acquired an extreme sensitivity to things that involve more than one sense at a time. They have become polyvalent. That is why they like to make their own clothes and huddle close together. For example, the youngest of my sons presently lives in a commune 150 miles from Toronto with a group of people who all enjoy their careers but want to get back to earthly roots.

**Babin:** The Church's main mission is to communicate the message of Jesus. I willingly accept that this message isn't a package, but how can it be communicated as a living reality?

**McLuhan:** Our youth has already chosen and accepted its masters. I mentioned disk jockeys earlier, in relation to the Middle Ages. Teens accept, without hesitation, their top-ten tunes. And a disk jockey has the answers to all the questions that you ask yourself in catechesis. Or they go find themselves a guru. Zen is all the rage. They snap up anything that refers to Zen, including motorcycle maintenance!

What counts today is the image that authority presents, and not the doctrine that it may want to get across.

Christianity is all about transforming the image that we have of ourselves. In the secular world, when we have lost our identity or when we want a new one, we go to see a psychiatrist. For eighty dollars an hour you get a new sense of your life. Well, the psychiatrist is a new model for the catechist. He is a new type of teacher. He conducts a seminar for you personally, like a tutor in the British school system, a private counsellor. Catechism probably should be reformatted as individual counselling instead of being designed for large groups.

**Babin:** In this regard, what about the Church's traditional insistence on having its own Christian schools to communicate the faith?

**McLuhan:** Think of Ivan Illich's book on schools, Deschooling. He says that since there is now more information outside of schools than inside, close them! I think he is going a bit too far. It is much better to bring the information *inside*. The answers to all problems, including religious problems, are already there, *outside* the classroom. Everyone in the human community has access to them.

I've just finished writing a book of exercises with some teachers that could be useful to us in teaching the faith [City as Classroom, Toronto: Book Society of Canada, 1977]. It proposes organizing students into small teams and sending them out into the city to investigate specific situations. They would, for example, go find developers and promoters to ask them detailed questions about what they were building. "How long will it take you to erect this office?" "What effect will it have on the existing buildings and on the community's established activities?" Then these teams would report back to the class and discuss their findings. Thus, they go out and come back in, alternating diastolic (expanding) and systolic (contracting) movements.

**Babin:** That suggests an active and democratic process. Instruction wouldn't be handed down from above. If you applied that to the teaching of faith, would you not be putting at risk the Church's voice of authority?

**McLuhan:** Obviously. But Church authority has to take on entirely new forms. Young people accept the authority of disk jockeys because they tune them in to what is in the wind or in the air, where they can vibrate in unison. The new ways of thinking and speaking, the new styles to which everyone conforms, are acoustic. The new way does not consist of seeing then doing, but of tuning oneself to the proper frequency, the right wavelength. It's our whole idea of communication that has changed.

In a connected, coherent world (that is, Newton's world), communication operated via connections and links. In the electric world, there are no connections, only separate levels that vibrate together or are in disharmony. We have discovered in our time that touch consists of tuning the sense organ to the frequency of the object itself, maintaining a constant interval between the organ and the object. If we want to grasp the object and squeeze it, we are no longer dealing with contact (and interval) but with connection.

To express their idea of communication, the kids use terms from the electronic and acoustic worlds: to be right on, to be with it, to be in, to catch the right vibes, turn on, and tune in. And that is the message of St. John's Gospel: “May those who have ears to hear, let them hear” [actually Matthew 11:15], that is, tune in to the right frequency. Most people, however, do not have ears for hearing, but only for listening. To listen is blinker yourself, to restrict the eyes, as it were. To grasp the way the words arrive, what

the speaker is saying. But to hear is to put yourself on the same wavelength as the speaker. Christ himself uses this metaphor. He speaks of listening as opposed to hearing. The scribes were "listeners," they looked at texts. "It is written ... but I say unto you ... " But they understood nothing. They had no ears for hearing, but only for listening. The same situation repeats itself today: you may have all the necessary titles and degrees but be on the wrong wavelength.

Jesus also says: "My sheep know my voice. I know my sheep and they recognize my voice. But if you cannot hear me you are not part of my flock" [paraphrase of John 10:27]. He repeats several times in the Gospel of John, essentially: "Most of these people do not belong to my flock, they are on the wrong wavelength. If they hear my voice, it is because the Father has tuned them to the proper frequency. He programmed them from within to hear me." St. John repeats it constantly. The Father has given me certain people who hear me, the others are content just to listen; they don't tune their receivers. They grasp nothing. To them it's all a great mystery!

**Babin:** Your famous phrase, “the medium is the message” can we apply it to the present question? Usually we think that the message is Christ and His Gospel, and that the medium is the Church. If it is so, how can we say that the medium is the message?

**McLuhan:** Let me begin with your first question which deals directly with the problem of communication.

Here I want to use the vocabulary and fundamental ideas of Gestalt psychology. In Gestalt, reality presents itself to the mind as a *figure* detaching itself from a *ground*. We notice the *figure* first and most often it dominates our whole field of awareness. However, the *ground* is at least as important and often is even more important, especially in the areas that concern us. I wasn't aware of Gestalt theory when I first talked about the medium being the message, and I hadn't yet discovered the significance of the two hemispheres of the brain.

Take a simple example. If you speak of the car as a medium, you are no further ahead because the car is no more than a *figure* detaching itself from a service environment of expressways, oil companies, automobile assembly lines, etc. The real medium, in the case of the car, is the totality of services it creates, or better yet, the huge change that it creates in the human community. The car as figure is not the message.

For North Americans, the hidden *ground*, the real message, of the car is what it does with our sense of privacy. The effect is different in Europe, but the car for us has been largely created to ensure our privacy; in other words, the car's message is privacy, intimacy, and solitude. Privacy is made possible by the large network of highways, the biggest architectural structure in the history of the world which, by contrast, makes the pyramids and even the Great Wall of China seem small. The car is no more than a figure in this service environment.

The same figure/ground gestalt structure applies to the Gutenberg press and all other media: the “medium” is not simply a figure. And a radio program is only a figure on a service ground: thus the program isn't the message. The real message is what we call the secondary or side-effect of the medium, not its obvious effects. Side-effects are always hidden, like the ground. We are not aware of them. That is also the essence of Gestalt psychology: the figure, the gestalt, is visible while the ground remains invisible. Human perception encourages us to pay attention to the figure (a painting) and to ignore the ground (its frame, the wall, etc.).

This is especially true in the West. The “Third World” has quite a different approach.

**Babin:** You spoke of secondary or side-effects. How do you explain that they appeared more important than the direct effects when what is at play is the communication of a message?

**McLuhan:** You are thinking in terms of efficient cause, like everyone in the Western world since it was foisted on us by Aristotle: such and such a cause produces such and such an effect. A car transports a man faster than his feet, radio provides instant information. So in the case of efficient cause: the cause necessarily appears prior to the effect, which is contrary to approaching it from formal cause. Efficient cause depends on the left cerebral hemisphere's concern for an abstract element which is also what the figure from Gestalt psychology is. Now in the electric age, at the speed of light, we need to process these things through the right hemisphere, that is, holistically, using formal cause. And in formal cause the effects appear to us before the causes. It is crucial that we use this approach. We need to know in advance what the effects on the users will be before we build the particular medium.

When we're in a frame of mind that draws mostly on the left hemisphere, we instinctively ask: what is the content of the radio program? That's what we think is the

message, the direct and obvious effect of the radio, which we believe to be the most important thing. However the content isn't the message. The real message is all the secondary effects produced by the services and disservices that the medium demands. And these are the social and psychic changes that the medium causes in the lives of its users (the formal cause). If you want to change the effects of radio and eventually protect yourself from them, you should not overly focus on the content, the radio program. The effects have already produced themselves regardless of radio's content. But, let's be frank, in the current mental context these matters are very difficult to accept.

**Babin:** You are aware that the Church has organizations which concern themselves exclusively with media. For example the OCIC for cinema, and the UNDA for TV and Radio. What role would you give these organizations?

**McLuhan:** I have already given you the answer. Whether you refer to the media or the Church, their leadership is entirely preoccupied with providing the best possible content. However, they miss the really important points. What you print has very little importance: the effects of print are exactly the same whether one prints "good" or "bad" books.

**Babin**: But if I push your idea to its limits, applying it to the Church itself, one could conclude that it isn't worth spending a lot of time working on the "message"?

**McLuhan:** Isn't the real message of the Church in the secondary or side-effects of the Incarnation, that is to say, in Christ's penetration into all of human existence? Then the question is, where are you in relation to this reality? Most people prefer to avoid the question by side-stepping it. The message is already there but they want no part of it. So they eliminate it by plugging into another channel. They hypnotize themselves with the *figure* so as to better ignore the *ground*. They prefer to study the words rather than the questions that Christ asks everywhere, and of every human being.

I think that Gestalt's *figure/ground* dichotomy presents us with a useful way of speaking and understanding. The cognitive agent - to speak like Aristotle and Thomas Aquinas - is on the level of the efficient cause, not on that of formal cause. He concerns himself with the “content” of Christianity, not with its true message which consists of being plugged into a person. Generally, when you teach the content of the

faith, you seldom go beyond its efficient cause. The formal cause is your manner of being, and all the baggage that accompanies your message.

As a result, to teach catechism as a given or as content is to limit oneself to only half of Christianity. The formal cause - the ground that is perceived unconsciously - is not words, but that part of the faith which operates in our lives. The two should be united.

In Jesus Christ, there is no distance or separation between the medium and the message: it is the one case where we can say that the medium and the message are fully one and the same.

Let me give you another example. Look at the following photograph: it is a well-known reproduction from a Chinese photographer. At a time when he was struggling with some religious questions, this man photographed a landscape of melting snow, in a cemetery with the black earth appearing here and there. When he developed the negative, he was stupefied to notice the face of Christ. He converted to Christianity on the spot.

**Babin:** I am looking at the photograph and I must admit that I see nothing of the sort.

**McLuhan:** I believe you have looked at the background as though it were the figure, and, as a result, you saw nothing. So is it with most people when they study a medium:

they focus on the medium's program, they grasp only its content. But the vehicle, the entire array of services necessary just to have a program - all of that escapes them. The Oriental, the man from the “Third World”, is better prepared than we to use the proper approach. Think of traditional Chinese painting which seems to be made up of voids, intervals, and blank spaces, and which for us may have no discernible meaning.

**Babin:** This Chinese photographer has thus seen Jesus in his totality, as medium and message, and he was transformed because it-suddenly-struck him, spoke to him from within.

**McLuhan:** That is exactly what I wanted you to notice. To say that the Word became flesh in Jesus Christ is the theological affirmation; it's the *figure* (in the gestalt sense). But to say that Christ touches all men - beggars, hobos, misfits - is to speak of *ground*, that is to say, of the multitude of secondary effects which we have such great difficulty in perceiving.

In fact, it is only at the level of a lived Christianity that the medium really is the message. It is only at the level that *figure* and *ground* meet. And that also applies to the Bible: we often speak of the content of Scripture, all while thinking that this content is the message. It is nothing of the sort. The content is everybody who reads the Bible: so, in reading it, some people "hear" it, and others don't. All are users of the Word of God, all are its content, but only a small number of them discern its true message. The words are not the message; the message is the effect on us, and that is conversion.

In other words, if you read the Bible, how do you read it? Does it pass into your daily life? Only then do you get the message, that is, the effect. Only in that moment do medium and message unite.

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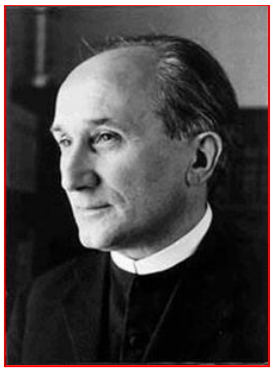
## CONTEMPLATION

Do McLuhan’s *electronic* metaphors of “vibrations” and “wavelengths” still apply under *digital* conditions? What new analogies do those born in the past two decades live by?

Do we still face a similar question in education today?
What do “synodality” and “formation” have to do with each other?

# FR. ROMANO GUARDINI (1885-1968)



*From "the machine", a structural order develops which has been invented and created by man, but which in its construction as well as in its effects is ever farther removed from direct human manipulation. It complies to human will and achieves human goals, but in the process it seems to develop a peculiar autonomy of function and growth. [...] The result is a world of thought, action, and works that are no longer capable of being experienced—a world that man has come to consider as an objective process complete in itself.*

*-Power and Responsibility: A Course of Action for the New Age*

## The Machine and Humanity

*A lecture held at the Technical University of Munich, 1959.*

### I

This lecture is about the way in which, in the course of his cultural development, man takes the things and energies of nature into his service - 1) the tool, 2) the device and 3) the machine.

That alone would not tell you anything worth listening to; you know better than I about what these cultural structures are and how they are made. This is not so much about the factual structure and performance of the machine as it is about what it means for human existence. More precisely, the question of how its production and use affect the living whole of man.

What I want to recount here will therefore be the character of an existential problem and thus necessarily one of concern. Thus, the negative element in the phenomenon of the machine, the possibility of danger and destruction by them will be of particular consideration here. However, I beg you not to want to see in it anything of that pessimism that is often felt in current cultural criticism, nor the resentment of an age that is coming to an end as opposed to the new, which represses it. It is a positive concern that should come to words; namely, whether the process of automation, which goes over the entire earth, will actually achieve what it can and should achieve.

This concern is surely also felt by you. Certainly a healthy optimism is part of everything truly powerful; it is also important for one to be aware of the *responsibility* of the machine, not only for its promoting, but also for its threatening effect.

**II**

In the series of constructions of which we will speak, we will begin with the “tool”.

By this we mean a thing that man receives into the functional context of his body in order to enhance a certain performance of his limbs and organs. The stone, for example, enhances the effect which the blow that a bony fist would have. The extension increases when the stone is shaped accordingly, and even more when it is tied to a stick. This is how the hammer is made.

From such simple forms, the tool develops to ever greater perfection. Its effect becomes stronger, more precise and differentiated - not to forget the aesthetic aspect, which asserts itself in the choice of material and in the applied ornaments, but also in the expression that the function itself finds through the form. Caused by the purposes which provide nutrition, safety and enrichment of life, so arises a great variety of formations. But it always remains essential that the tool-thing remains inserted in the functional context of the human body; that it works as reinforcement, refinement, clarification of the power which produces the human senses, limbs and organs.

The next phenomenon in the series is the “device”.

By this we mean a structure of things that is outside of the bodily-functional context and fulfills certain purposes on the basis of directly effective natural energies. The laws according to which this happens are not yet rationally penetrated, but only recognized as rules of the event through experience.

For example, the ability of the teeth to grind cereal grains is transferred to two flat stones, one of which is rotatable, and the hand mill is created. The character of the apparatus intensifies when, instead of the organ's force of the arm, there occurs the pressure of flowing water, which is caught by a wheel and transferred by intermediate links to the millstone. This is how the watermill is made.

Humans succeed in isolating functions and objectifying specific processes using enduring devices. The desired effects take place in them, without the person becoming directly active, as is the case with tools. In this way, a world of structures arises around him, which on the one hand protect his life against the dangers of the natural

environment, on the other hand expand his possibilities of direct action in nature: house, mill, trap, wagon, boat and much more.

The very being of the device stimulates the “homo faber” to continuously train it. Their effects become ever stronger, finer and more precise; their material and energy consumption more economical; to regulate their function more securely and so on. From there, transitions to the “machine”.

**III**

We can say of a reliably working water mill that it is still a perfect apparatus, but also that it is already a machine. In terms of its exact meaning, however, such a function is only present when the function has been *scientifically understood and technically worked through for a precisely determinable effect*.

Its character emerges even more sharply if the energy used is not found in nature - like water pressure or gravity - but, on the ground of scientific insight, is loosened out of the natural context and brought to its disposal: steam power, electricity, atomic energy.

The machine relieves people of immediate work, and they can limit themselves to construction and monitoring. In addition, they can use it to tackle tasks that go beyond their powers - yes, which, as the last decades have shown, increase enormously.

The particular function of one machine is related to that of another; controls it, continues it. This is how the plant, the factory, is created. . . Factories for their part enter into a relationship with one another, and industry emerges, supported by corresponding sociological structures.

The tool and the device rested on processes that could be seen through without much trouble; exercised functions that could easily be felt. These used nature as it was immediately presented; the only problem therein was to find the necessary materials and adapt them to the purpose.

From this relation to the human organism and to the given nature came that character of the natural and organic, which we perceive as that strange harmony of the ancient cultures. The field of action on which the tool and the device played led without breaking on one side to the immediately-given nature, on the other, to the equally immediately-given humanity.

The more explicitly the machine is built out, the more this connection disintegrates, because between the man and the machine on the one side, as well as between machine and nature on the other, the processes of scientific knowledge and technical

construction lie. This means not only, as in the device, a transformation grounded on experience and craftsmanship, but something that has gone through the unillustratibility of the scientific theory and by the complexity of the technical construction.

All the more, the deeper the scientific insight penetrates into the foundations of nature. The fact that a lens enlarges small objects and thereby makes them clearer to the human eye can easily be perceived. But when the microscope arises from this on the basis of a theory incomprehensible to the layman; even if this theory uses the insights of electronics and makes miniscule things visible that could previously only be inferred theoretically, then there is such a complex process of scientific thinking between the person who uses the microscope and the object that comes before his eyes and its implementation in technical construction, so that it is no longer possible to feel it through. It is true that the machine was created by man; the way to his work, however, leads through such radical transpositions that the result looks like something foreign and independent to the user's attitude to life.

## IV

What then does the machine mean for humans?

Without wanting to associate an assessment with this ordering, we first mention the possibility of increasing one's purposes more and more, differentiating them more and more finely and fulfilling them more and more reliably. Thus, due to the mechanical function, the broad, diverse field of technical culture washes up.

The medium of this culture makes it possible to cope with ever finer and ever more gigantic tasks of knowledge and work and thus to approach what can be called the objective sense of history: the fully formed, and thus ruled, world.

A second is the progressive increase in human power. This power is an immediately perceived value. The natural thing only *is*; the man *knows* it. The thing only *exists*; the man *has* it. The natural energy brings about corresponding effects on the basis of the respective laws; man *determines* it. By gaining power, man realizes his humanity. In every successful action, the feeling of the strong stone, the knowing and the having resonate.

This power also means liberation. The ignorant man, who does not understand nature, is trapped in the uncanny. The impotent, which does not have, is subject to the attack of their energies. The index of this weakness is fear; it becomes greater the further we go back in history. As knowledge and technology advance, it decreases. Man becomes free, he becomes master.

Another aspect is added. The animal is absorbed in the context that is determined by its organization, in its environment; man, on the other hand, is fundamentally related to the world as a whole. Of course, this universality is restricted by the given historical conditions - just as the individual sees and is only able to see as much as his education and social position allow him. However, these limits are relative and can fundamentally be pushed back: by the individual himself, in that he strives and learns; through his offspring, improving their condition; through later epochs as they progress historically. Man's behavior is geared towards the larger in each case; his goal is to master the whole, to seize the world. Indeed, a precise analysis discovers the “I-world” relationship already in the restricted object relationship, for this takes place essentially, categorically, in such a way that man, by virtue of his spiritual determination, comes out of the immediate natural context and confronts beings. It is precisely in this that he grasps the object as a whole, and in detail the whole: the world.

This relation to the world experiences externally visible realization through the machine. Today we are going through a history lesson in which this is particularly and forcefully played out: man loosens his bond with the earth and realizes a relationship to space through the machine, which his own direct powers would not be able to reach.

In the march of history, the sociological structures that man experiences are widening more and more. The family grows into a tribe, into a people, into groups of nations and alliances, and so on.

The past century was characterized by the fact that political perceptions and impulses were based on nations; ours thereby, that the political field of the earth closes and the mutual interdependence of all nations is brought into awareness. A stage of historical existence is emerging, which is supported by the totality of the human. The perception of a human state would still be utopian; but the thought of two hostile groups of humanity and the struggle between them, as it determines current politics, perhaps represents what, for the first time, can become a reality.

This process is closely related to the fact that the earth no longer simply forms the human habitat, but that it stretches over the earth into space. The realization of the relation to space on the one hand and that of the earthly human whole on the other hand are mutually dependent and condition each other. But in the strictest sense, both have only been made possible by the machine.

## V

From what has been said, difficult problems arise that touch the very ground of our existence.

There is no one-way effect in human affairs. Every effect corresponds to a counteraction. All human activity is polarized, even from the very start. It is impossible for a person to do something whose effect remains outside of himself; while he is working he always comes under this counteraction. If I take possession of something and have it, then the thing has me too - we only need to reflect on the psychology of possession, as it leads from the experience of poverty on the one hand to that of the highest wealth on the other. When I know, I am affected by the knowledge; again we need only think of how increasing knowledge increases the courage to live; or how from a large, but not a completely penetrating knowledge, skepticism arises.

Let us become aware of some directions in which the human relationship to reality is polarized under the influence of the machine.

We have seen that the machine gives an ever-increasing power; to have power does not only mean that he who has it can determine other and others, but also that this other influences his own position. Whoever wins power experiences it; that takes spirit and soul. Whoever has power must administer it; that creates ties. He has to vouch for it, and that makes it an ethical problem. If he tries to evade these repercussions, he steps out of the human and falls prey to the logic of theoretical and practical connections.

From the very power that the machine gives, the highest dangers of the man-made kind arise. In physical terms, the rape of one group of people by the other: war in its open, as well as its veiled form. In terms of soul and spirit, the influence of one person’s thinking and feeling on the other: let us recall, for example, the influence of newspapers, radio, advertising technology on public opinion and so on.

That burdens mankind with a corresponding responsibility. But is this enough? Does he even feel it? If so, then it has to be expressed in an ethos of power-acquisition and power-exercise. The prerequisite for this would be that the person who uses the machine would stand in front of it in freedom; feels and treats it as something for the effect of which he has to determine the measure. But does he do that? Is there such an ethos? The answer is very vague. It is a disturbing fact how often trying to gain such an attitude towards the machine is viewed as "Romantic". As a rule, today's man seems to perceive the machine and its effect as something simply given, about which nothing can be changed.

Yes, as an incentive to start precisely where the reservation of the personal sphere should forbid access. In the certainly not anti-technical Frankfurt General Newspaper, an article was to be read that glaringly sheds light on a detail of what it is all about, namely the possibility of making a tape recording during a conversation without the

other noticing. But that means the fundamental threat to something that is essential for human intercourse, namely trust. It said:

> “Some time ago, industry announced that tape recorder microphones could now be made as small as a wristwatch. They are now widely available to the public - not just so small, but camouflaged like a wristwatch with a dial and second hand.
> [ . . . ] A customer asked the saleswoman whether people were embarrassed when they asked for such things. Embarrassed? Why should you be embarrassed? Was the counter-question. In the past, such tiny microphones were only available for professional spies to use. Today they are produced for everyone. And quite a few buy them. We cannot prevent that, but we are allowed to say “Boo, Devil!’ ”(“ Tiny Spies ”, FAZ 9/10/59).

The reporter says “Boo, Devil!” He still has the ethical judgment on the matter. The general public no longer seems to have it. But these are not romantic ones. Fear of the machine, but rather power, is something that must not be questioned if the essence of man is not to be threatened. The image of a human coexistence in which the self-evident fact that trust is being destroyed is unsettling.

An editorial in the same newspaper speaks of the possibilities of private television and says very fundamentally:

> “Technology can terribly increase the vice or disaster that is inherent in the character of man. Logic acquits the engineers, just as it must acquit the atomic physicists. But we cannot get rid of an anxiety that today our designers are always working in a track that follows the fateful, and takes the direction precisely towards the goal that the hidden terror in the human race is striving for. The power instinct, the control instinct, the infamous curiosity instinct and exposure are pushing ahead with the new instruments and are approaching the limits of evil.” (“The distant eye sees you ”, FAZ 25.8.59).

If it increased, what would such access mean? That the power which is supposed to liberate man has the opposite effect, namely bondage.

Another question: will man be able to absorb the constantly growing power into his feelings? The possibilities of feeling are not unlimited. You can experience the effects of a revolver shot if the victim collapses. You can experience the effects of a grenade when the building collapses. But can one experience the effect of a rocket sent on its way, in which the flight is only a mathematically controlled process? Doesn't the phenomenon of a no longer “felt”, but merely brought about world of effects appear here?

One speaks of “objectivity” as the most modern virtue and means that attitude that disregards one's own feelings and focuses purely on the achievement of a certain achievement. In it one sees - and rightly - the prerequisite for being able to master such enormous tasks as those of our time. But doesn't this objectivity also have an opposite side, namely the chilling and numbing of feeling?

It is obvious that such a thing is going on in the whole of our situation. This can be understood romantically, as a wish to return to a more inner, more sheltered way of life; but it can also be understood in a completely “objective” sense, namely as the question of what happens to a person when he is increasingly able to switch off his feelings. Then this becomes weaker, because nothing living remains alive when it is shut down.

But are the highest, actually human values still in good hands with such a person?

Another phenomenon points in the same direction. Through every technical activity, nature is taken possession of, used, shaped: it becomes culture. “Nature” is that which is there by itself; “Culture” is what a person makes of it. As history progresses, the cultural factor in existence becomes stronger and stronger, the natural one diminishes.

With the appearance of the machine, this process enters a new stage. In principle, nature is detected  and made available for use. So much so that even when people go out into it, they bring the cultural attitude with them. We need only think of the influence of photography, which has largely become the form in which the traveler encounters things in general; or the way travel and vacation are organized and infused with all forms of urban amusement. The process seems inevitable; but the question arises as to how the constant reduction of the natural factor contained in the proportions of human existence affects it.

Every new machine means that a person surrenders to the technical structure an achievement which he had previously mastered with his intellectual organic structure; so he objectifies something that was originally subjective, part of his life initiative. That relieves him; he becomes freer. But it also has the effect that a possibility of creating and experiencing the world and self-development is lost. As long as there was only the sailboat, seafaring was often a dangerous business; but it also brought with it all the life enhancements associated with this very risk. The modern ship eliminates the dangers more and more; the traveler lives a few peaceful days in a floating hotel. Is that a gain or a loss in relation to the whole of existence?

That the machine brings a previously unknown measure of freedom means first of all a gain. The value of freedom is determined not only by the question: freedom from what?

But also, and in a decisive way, by the other: freedom *for* what? Every social pedagogue knows what problems, for example, the use of the time freed up in the area of the machine poses. If it is not possible to make the gained free days and weekends really meaningful, then the result will be negative.

Finally something should still be indicated which concerns the innermost life of man. The progressive intensification of science and technology, including everything that they bring about in economic life, in traffic, and in public consciousness, seems to diminish the ability of immediate religious experience to be receptive to religious motives. Some time ago - I was told - there was a word in Westphalian: "Where the railroad comes, the second-sight disappears." This indicates what is meant on a sideline of the phenomenon. The attention of today's human being is drawn through the rational and utilitarian tasks in such a way that he forgets to pay attention to the “other dimension” which is appropriate to existence.

So it is no coincidence that the worldview that sees in the machine the symbol of fulfilled culture, namely materialistic communism, seeks to destroy religious life in its program. It starts from the assumption that science and technology are simply the foundations of existence, but they demand such a degree of empirical concentration that anything religious can only have a damaging effect. For the positivist who thinks in the Comte’s formula for the progress of history - lowest level: religion; second stage: philosophy; third and real stage: science - the disappearance of the religious would be a gain. Whoever looks deeper knows that it would mean the loss not only of an essential but of the innermost element in the human.

On the other side, the process also caused us to rethink the problems of religious existence and to see that the center of belief must be more deeply rooted in the actually-personal, into the risk and the loyalty of the decision, than has just happened. But we have to let this question rest here.

## VI

From everything that has been said, tasks arise that are as profound as they are urgent. I cannot even go into them here in the form of a hint; I would just like to say how important it would be for you, ladies and gentlemen, the current and future supporters of the technical initiative - to become aware of them.

I know there is a kind of concern that makes people suspicious of what is happening now. Often it just means not understanding. Sometimes it comes from people who are still rooted in the epoch that is coming to an end. It is not infrequently an expression of a romantic-aesthetic type of feeling. But we also do not want to forget that those who are devoted to practical tasks are all too easy to simply ignore the problems. Or they

have a belief in the power of progress, they think that everything will be right and feel relieved of their own responsibility. In truth, these are questions that concern man and his future.

One would like to fantasize a little - utopias have already become reality so often that this would be entirely legitimate: I would like to imagine a spiritual council of the people in which the best beyond all politics considered these questions with one another. Human existence has advanced so far, man has been given so much into his own hands, the possibilities of accomplishment as well as destruction have become so inconceivable that it is time for a new virtue: a spiritual art of government in which man, through so a lot of experience became serious, out of bias in the individual areas of thinking and life. So that would happen in these best. A living consciousness of humanity would enable them to see the whole of our existence, and with a truly sovereign objectivity they would consider the “res hominis”.

A utopia, as I said; but utopias have often been the forerunners of very serious recognitions and deeds. If I see right, some things are moving in this direction; but it is unsettling that everything is so isolated and hesitant. In history, the creative and unifying forces work more slowly than the one-sided violent ones, and those who might help loosen tension often come too late. It would be an enormous grace of history if that brightness of awareness, to the formation of which science and technology have contributed so much, were able to anticipate the threat.

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**CONTEMPLATION**

Can the iPhone (or even a simple computer) be a “tool”, in Fr. Guardini’s sense? Since 1959, what means of responsibility do we have over our own inventions?

Have you felt Fr. Guardini’s influence in the works of Pope Francis, Pope Benedict XVI, and saintly Popes Paul VI and John Paul II?

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**We would now like to present selections from the Center for the Study of DIgital Life’s “practical journal”, *Dianoetikon*. The journal is named after the Greek word for the “cogitative power”, the highest sensible faculty in human beings according to St. Thomas Aquinas. The first volume is on psychology and human dignity.**

# CENTER FOR THE STUDY OF DIGITAL LIFE

**Selections from *Dianoetikon vol. 1: Psychology & Human Dignity***

## The McLuhans and the Inner Senses

**Peter Berkman**

**ABSTRACT:** By the time Marshall McLuhan (1911-1980) converted to the Catholic Church in 1937, faculty psychology – definitively treated in St. Thomas Aquinas's commentaries of Aristotle – had been abandoned. Shaken by endless waves of technological revolution, McLuhan was confronted with the question of how different forms of media shape our senses & modes of perception. He believed that in an age of constant change and mass confusion, new sciences had to be invented to meet this task. Today it is known as "Media Ecology". Marshall based his work on St. Thomas's doctrine of an inner sensory power called the "common sense", but nowhere does he have an explicit account of the other three inner senses accepted by St. Thomas: the *imaginative* power, the *cogitative* power, and the *memorative* power (each thought to be located in different parts of the brain). Without accounting for these *inner* senses, Marshall's work treated media as altering the balance and ratio only among the five external senses: with particular media mainly tending toward either a *visual* or *audile-tactile* bias. This oversight has left the question of what different technological environments do to the *inner senses* unanswered, and even unasked by any psychologist. Today many search for a way to make McLuhan relevant to our own technological revolutions, but we can't hope for a fair or useful account unless we take his basic assumptions along with the deficiencies of his times. McLuhan has never been considered on his own terms, and today he is praised for reasons which would have baffled and annoyed him. We will start with the Catholic Church's failed effort to revitalize St. Thomas Aquinas's faculty psychology in the late 19th century, continue with McLuhan's relationship with his various Thomist mentors as he adapted their assumptions to his own work, and finally discuss the meaning of McLuhan's explorations in light of a fuller account of the inner senses as understood by St. Thomas Aquinas. In doing so, we hope to establish an adequate "anthropology" with which to contend with the problem of Media Ecology, accounting for human life and activity amidst rapidly changing media environments.

## PSYCHOLOGY: CATHOLIC OR "MODERN"?

*"Let the universities already founded or to be founded by you illustrate and defend this doctrine and use it for the refutation of prevailing errors."*

*- Pope Leo XIII, Aeterni patris.*

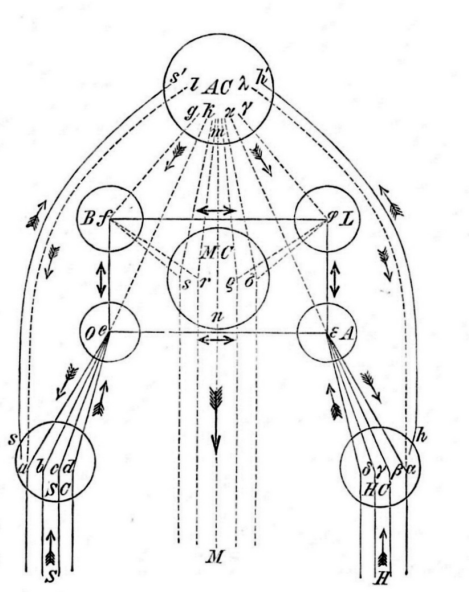


Fig. 105 Scheme of the hypothetical connections of the apperception center. *SC* sight center. *HC* hearing center. *S* central optic nerve fibers. *H* auditory nerve fibers. *A*, *O* sensory, *L*, *B* intermediary motor centers. *MC* direct motor center. *M* motor central fibers. *AC* Apperception Center. *s s '*, *h h'* centripetal orbits to the latter, *l a*, *g f* e t c. centrifugal connections of the same.

*(Wundt, Grundzüge, 1903, 5th ed. Vol. 1, p. 324.)*

The late 1800's saw the industrial revolution and the invention of the telegraph, but there was no scientific development more pervasive and fundamental than experimental psychology. In 1879 Dr. Wilhelm Wundt (1832-1920) – by some accounts, the first man to ever call himself a psychologist[1] – opened the Institute for Experimental Psychology, the first laboratory of its kind at the University of Leipzig. That same year in response to prevailing scientific shifts, Pope Leo XIII issued the encyclical *Aeterni patris*, calling for Catholic teachers to "restore the golden wisdom of St. Thomas [ . . . ] for the advantage of all the sciences,"[2] to contend with Wundt's developing technological field of "psychophysics", facilitated by equipment and measurements.[3]

Over the following decades more labs patterned after Wundt's initial effort began sprouting up in China, Japan, Russia, and the United States. In the midst of this Pope Leo XIII's attempt to restore St. Thomas to his seat in science was met with overwhelming resistance, and ultimately failure.[4] All across Europe, in England, France, and Germany, the response to Pope Leo's initiative was led by the Jesuit order, and when it came to the crucial psychological topic of the inner senses, where what is "sensed" becomes what is "understood", the Jesuits turned to their own interpreter of St. Thomas, Fr. Francisco Suarez (1548-1617).[5] Where St. Thomas outlines four distinct inner sensory powers, Suarez and the Jesuits denied any "real" nor "formal" distinction among these faculties, reducing the four powers to just one power. Leo, aware of this general institutional inflexibility even within the Church, set out to make an institution of his own at great cost and effort: the Higher Institute of Philosophy founded at the University of Leuven. There he hoped would be the "shining beacon of Thomist philosophy":

> Let the universities already founded or to be founded by you illustrate and defend this doctrine and use it for the refutation of prevailing errors. But, lest the false for the true or the corrupt for the pure be drunk in, be ye watchful that the doctrine of Thomas be drawn from his own fountains, or at least from those rivulets which, derived from the very fount, have thus far flowed, according to the established agreement of learned men, pure and clear; be careful to guard the minds of youth from those which are said to flow thence, but in reality are gathered from strange and unwholesome streams.[6]

But even this effort failed. In the school's psychological manuals, if the inner senses are even mentioned, they are glanced over. Instead, much more attention and money went to the development of the Institute's own version of Wundt's psychophysics lab.

This is the ground which we have chosen to situate the work of Marshall McLuhan. The Priest who facilitated McLuhan's reception to the Catholic Church, Rev. Gerald B. Phelan (1892-1965) was caught up in this tension at all sides. He earned his doctorate at Leuven's experimental psychology lab on "Feeling, Experience, and Its Modalities" just before heading to teach psychology at St. Michael's at the University of Toronto.[7] Yet beneath this, Phelan was also a Thomist and close friend and translator of both Etienne Gilson and Jacques Maritain, who got Toronto's Institute of Medieval Studies it's pontifical designation from Pius XII. Phelan helped Marshall publish his first essay on G. K. Chesterton in the *Dalhousie Review*, and helped secure teaching jobs at Catholic institutions like St. Louis University and St. Michael's at Toronto.[8]

Marshall's debt to Phelan was not just institutional, but intellectual: the "analogy of proper proportionality" as treated by Phelan was Marshall's first inroad for engaging with St. Thomas.[9] But from the outset, Marshall read Phelan through another 'unorthodox' but ardent and highly practical Thomist, James Joyce (1882-1941). At the

heart of his interest laid a process of “arrest” and “retracing the stages of apprehension” of any form of beauty, as a formal cause.[10]

As part of Joyce’s training in Dublin he read England’s contribution to Pope Leo XIII’s larger Thomist effort: *Psychology*, written by Stonyhurst Jesuit Fr. Michael Maher. Joyce’s copy is annotated in-line throughout, complete with a custom index on the back page. In the section where the inner senses are dealt with, Fr. Maher SJ has left the matter to Suarez’s doctrine: that “there is no real nor formal distinction among the internal senses”. Next to this paragraph, the young Joyce has written in pencil: “?”.[11]

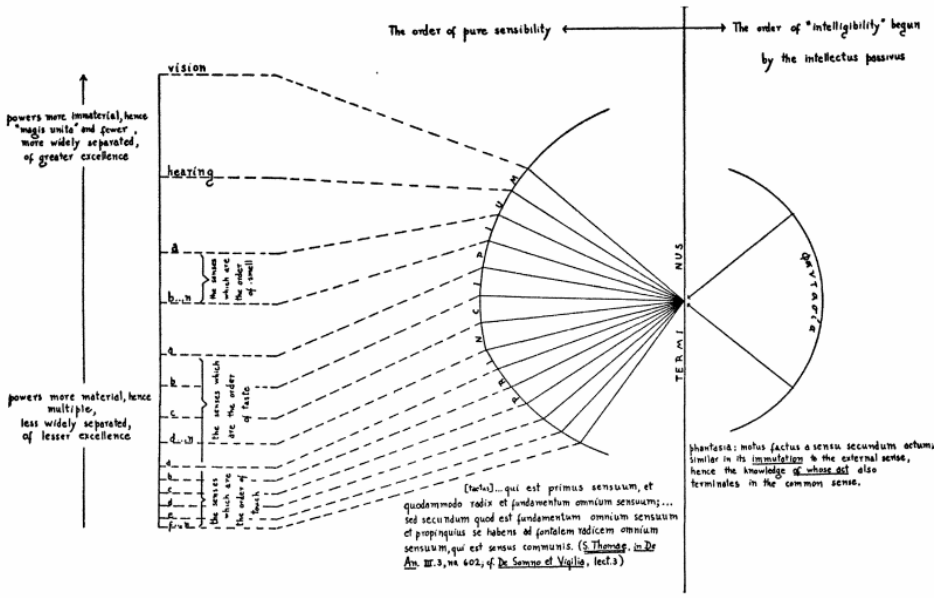
## TWO THOMIST MENTORS

*"Now, the public for whom one acts or writes, is necessarily the formal cause, whether in philosophy or theology or in the arts. Does this fact not explain why there is no theory of communication in philosophy since Plato? The study of 'content', is it not the efficient cause?"*

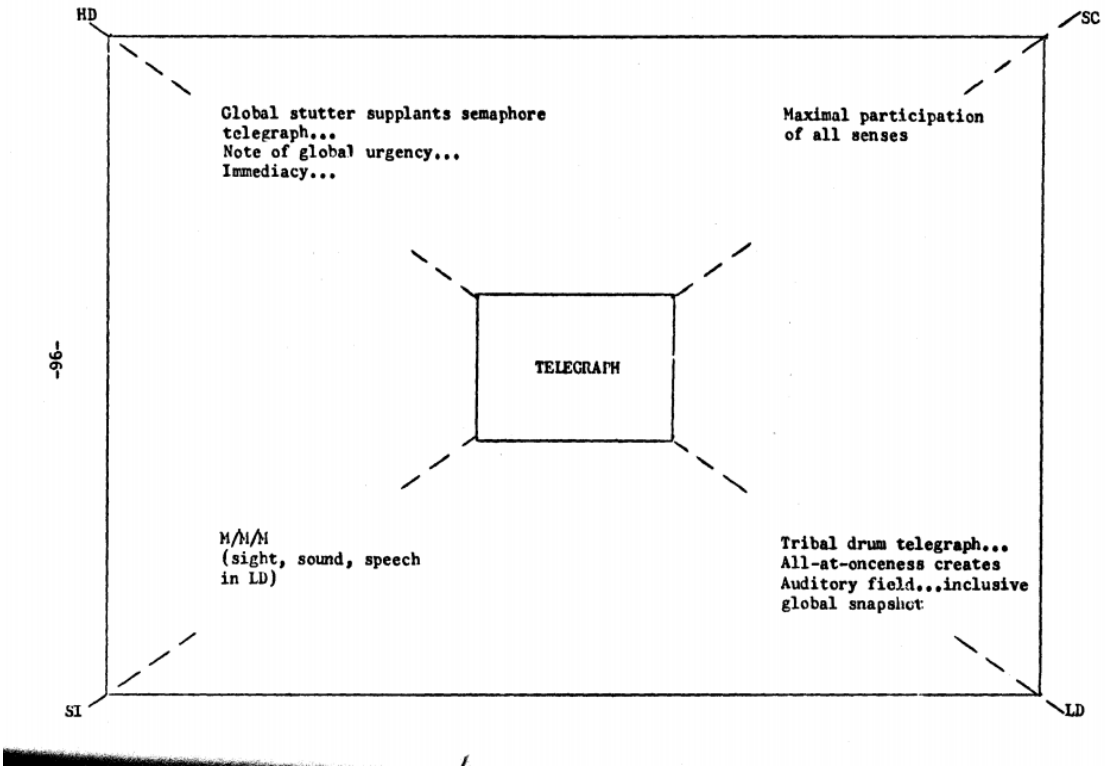
*- Marshall McLuhan to Fritz Wilhelmsen* [12]

With the world of “Thomism” in disarray, McLuhan relied on the help of two friends. In the 1930s, he worked closely with Etienne Gilson’s star-pupil Bernard J. Muller-Thym (1910-1974). Muller-Thym was Marshall’s best man at his wedding, and godfather to Thomas Eric, his first-born.[13] Marshall’s second Thomist collaborator came after his rise and fall from world fame in the 1970’s, the “last Thomist standing” among the Jungians and phenomenologists at the University of Dallas, Fritz Wilhelmsen (1923-1996) - who would help Thomas Eric earn his own doctorate there.

Muller-Thym helped Marshall to interpret Joyce as a faithful and even strict Thomist. Muller-Thym published an essay: *The Common Sense, Perfection of the Order of Pure Sensibility* which distinguishes this “common sense” - the internal sense responsible for the reception of all sensible forms - from the three other internal senses: the imaginative, memorative and cogitative powers, taking care to note that the work of “intelligibility” does not begin until after “sensibility” has been “perfected” (i.e. completed).[14] Marshall’s filed copy is notated at key sections, he was particularly dazzled by the common sense’s seeming power of “sensory translation” - that by one sense “white” can be distinguished from “sweet”.[15] As Muller-Thym affirms: “it is necessary that there be a sense which apprehends in the manner of ‘one’ that which in the external senses is many’.”[16]




*Muller-Thym, Bernard J.* "*The Common Sense, Perfection of the Order of Pure Sensibility.*" The Thomist: A Speculative Quarterly Review *15, no. 4 (1940), 315-343.*




*McLuhan, Marshall.* Report on Project in Understanding New Media*. Washington: National Association of Educational Broadcasters, 1960.*

For Marshall, Muller-Thym's description of the sensus communis' "synaesthetic" quality was completely bound up with different modes of poetry and had seemingly never been explored by anybody, let alone any critic of poetry. The historical neglect of St. Thomas's common sense would later serve as the basis for his 1960 Report on Project on Understanding Media[17], and later the books which launched his public career: The Gutenberg Galaxy: Making of Typographic Man (1962), and Understanding Media: Extensions of Man. (1964).[18] The entire field of Media Ecology owes its origin to McLuhan's application of Muller-Thym's basic text. So rich was this account that even 70 years later Muller-Thym's Godson, Eric McLuhan would write:

> For half a century now, it has been a commonplace of media studies that each technology extends one or another sense or faculty, according it a sort of hyperesthesia, which has then the effect of numbing the bodily sense extended and rearranging the interplay between the other senses - what we have been calling the *sensus communis*.[19]

Marshall once wrote that his life in sharing rich metaphysical conversation with Muller-Thym "was like knowing James Joyce himself."[20] For Marshall, it was Joyce's Catholic awareness of these Thomist doctrines which set his sensibility, and prowess for training the sensibility of his audience far above his modernist peers.

> [Joyce] seems to have been the first to notice that the dance of being, the nature imitated by the arts, has its primary analogue in the activity of the exterior and interior senses. [Emphasis added] Joyce was aware that this doctrine (that sensation is imitation because the exterior forms are already in a new matter) is implicit in Aquinas. He made it explicit in *Stephen Hero* and the *Portrait*, and founded his entire poetic activity on these analogical proportions of the senses. (James Joyce: Trivial and Quadrivial)[21]

This statement of the sensory order as a living reality spoke deeply to McLuhan's own sensibility of human thought as being necessarily and essentially embodied, with deep and wide bearings for the life of the Church and his Catholic faith. Unfortunately, this breakthrough for Marshall coincided with Muller-Thym, the brightest medieval scholar in North America having his academic career cut short. A dispute with Mortimer Adler caused Bernard J. Muller-Thym's abrupt and permanent exile from academia, vowing "never to return to that cyclotron again".[22] Maritain asked Muller-Thym to apologize in public according to Ignatian morals, and Gilson, his teacher, carried regret and sadness over it for the rest of his life.[23] Marshall, however, continued reading Joyce in light of the *sensus communis*. His 1951 "Joyce, Aquinas, and the Poetic Process" cites a key passage in Joyce which inextricably links the sensible world to the world of beauty, through the cognitive faculties of the soul:

> It is almost impossible to reconcile all tradition whereas it is by no means impossible to find the justification of every form of beauty that has ever been adored on earth by an examination of the mechanism of esthetic apprehension whether it be dressed in red, white, yellow, or black. [ . . . ] The apprehensive faculty must be scrutinized in action.[24]

Marshall did not fail to note that "it is impossible to exaggerate the importance of this last phase for an understanding of Joyce's art", but with no one around to fill in the gaps, he was left to rely on Muller-Thym's understanding of the *sensus communis* and Phelan's account of the *analogy of proper proportionality* of the senses.[25]

This earlier stage of McLuhan's work, beginning to take shape in the 1940s, can be associated with the help of Muller-Thym. It was at this stage that McLuhan had gleaned the insights that would earn him world fame as an 'oracle of the electric age'. A look at his correspondence in this period reveals Marshall as a man of action. He hoped that his unique talent to use everything new and old at his disposal to provide clarity to a confused time, while at the same time happening to be a Catholic, would be an edification of the faith. But once his religion was made public, his secular reception waned. Over thirty years after his mentorship from Muller-Thym, Marshall would again revisit these topics explicitly in terms of "formal causality". Marshall struck up correspondence with St. Thomas scholar Fritz Wilhelmsen at the University of Dallas, who had also studied with Fr. Phelan at the University of Notre Dame's Medieval Institute. His reception inside the Church was also met with general neglect. In 1972, McLuhan was appointed to the Pontifical Council of Social Communications, but lamented that any comments he would have to give on their documents (such as *Communio et progressio*) would be a "sour note". With all of the attention on him dissipated by the mid-1970s, it was Frederick D. Wilhelmsen - a lone Thomist increasingly surrounded by phenomenology at the University of Dallas - who provided a sense to Marshall that St. Thomas was indeed still relevant and that "action" was still possible. In what appears to be a type-written summary of a phone conversation, it is seen that McLuhan & Wilhelmsen outlined each of the inner sensory faculties according to St. Thomas, but for reasons which remain mysterious, they never broached it any further.[26]

The nature of McLuhan and Wilhelmsen's relationship was that of finding new ways for the insights of St. Thomas to encounter and correct the influx of phenomenology and Jungian psychology after the Second Vatican Council, a circumstance McLuhan called "the new occult". Wilhelmsen complained about the state of affairs under Donald and Louise Cowan's guidance at the University of Dallas, and McLuhan suggested that the answer lay in a radical reinvention of "formal causality".

What McLuhan presented to Wilhemsen was outside the scope of what, at the time, was considered "orthodox" Thomism. Wilhemsen responded:

> If -- and here I swing radically towards your view -- the entire content of any act of cognition and all cognition is communication -- is formally specified by the phantasm [McLuhan's written note on the paper: "=audience"] -- i.e., the symbolic structure in which meaning has intentional being -- and if the phantasm is simply short-hand for the world in which you are, your cultural ambience; and if the cultural ambience is the audience -- the philosopher cannot talk in a void any more than the rest of humanity -- and certainly the audience is the formal cause.
>
> (Wilhelmsen to McLuhan, 1975)[27]

McLuhan suggested the "figure and ground" configuration as outlined by gestalt psychology for this total approach. The audience and the performer are taken in a figure-ground gestalt, one can not be understood minus the other. Further, McLuhan took the hidden ground — the environment or media's subconscious action on the audience — to be the formal cause underlying any "mythic" figure. As Jungians and phenomenologists attempted to wrestle with mythos, McLuhan insisted that the *logos* of the media and their etymologies be taken into account:

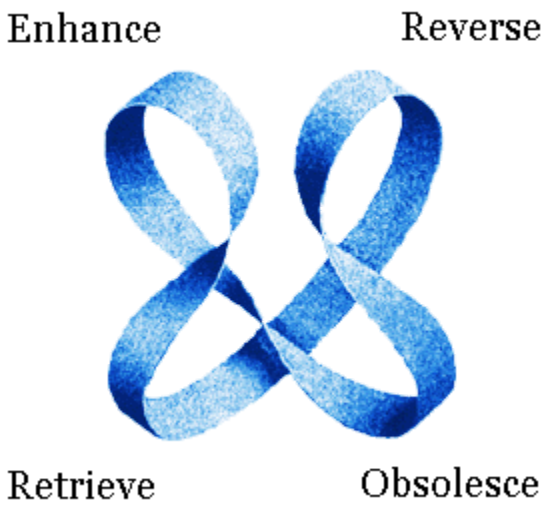
> Since the phenomenologists have taken an increasing interest in language, they have also begun to pay more attention to the hidden ground in all structures, as witness Levi-Strauss. Without knowing it, they are phasing themselves out of the Hegelian tradition. I suggest that you might, by this back door, as it were, take over the whole field of philosophy for formal causality. You could even stop mentioning Aquinas! In other words, you would be doing what Aquinas would be doing if he were here today. He certainly would not be teaching Thomism.
>
> (McLuhan to Wilhelmsen, 1975)[28]

Marshall insisted that they write a book together on formal causality -- but for reasons that remain mysterious, their correspondence tapered off after they published an article together, with a comment from Fr. Joseph Owens CSSR.[29] It was around this time that Marshall, enlisting the help of his son Eric, aimed to invent a new science which would account for the "phenomenology of the media", the transformative and environmental factors which remained hidden from Jungian explorations. He suddenly aimed to revise his most popular book (Understanding Media) and his Cambridge doctoral thesis with this new understanding. This would take up the rest of McLuhan's life before his stroke in 1979 which rendered him speechless.

**Laws of Media**

*"Since our reason has been given us to understand natural processes, why have men never considered the consequences of their own artefacts upon their own modes of self-awareness?"*

*- Marshall McLuhan to Jacques Maritain*[30]




*McLuhan, Marshall, and Eric McLuhan.*
*Laws of Media: The New Science. Toronto: University of Toronto Press, 1988.*

Throughout his career, Marshall insisted that all media – speech, writing, telegraph, radio, television etc. – are embedded with certain "sensory biases" which were to be treated as what Aristotle had called ***"formal causes"***, patterns of action which "shape and re-shape human perceptions." As devout Catholics, Marshall & Eric noted special significance of the use of the Greek word "logos" in Aristotle's account of formal causality - as Eric would note in a much later essay *On Formal Cause*, being necessarily verbal: it requires humans.[31] Marshall wrote to Wilhelmsen: "you may recall, Fritz, that it was the phonetic alphabet that first isolated the visual faculty from the other senses," and elsewhere: "classical rhetoric [i. e. the spoken word] includes the whole range of human faculties, especially as embodied in the Verbum and Logos."[32] He refused to reduce the scope of causality to value judgments about the media being a "good thing" or "bad thing", and instead asked what do they actually do to the structures of our souls, the shape of our sensory lives? An analogy for formal causality given by Aristotle is the shape of a seal and the shape impressed in wax.[33]

We participate in these forms, undergoing structural change at our own peril, and "we become what we behold" through our persistent use. This was the constant ground of his entire literary career: he wrote a book about the psychological effects of the printed word (The Gutenberg Galaxy: The Making of Typographic Man)[34], his dissertation was about how the western world was made and transformed by the spoken & written word (The Classical Trivium)[35], and his most well-known book was a catalogue of 33 different 'media' from highways, to newsprint, to television (Understanding Media: Extensions of Man)[36]. He wrote that each of these media or "languages" are "environments which are hidden from the young learner, and to which, like fish to water, he relates synesthetically, using all his faculties at once," and as the child completes its formative years into puberty "the senses specialize via the channels of dominant technologies and weaponries".[37]

His mysterious phrase "the medium is the message" is spelled out very clearly in a 1960 report commissioned at the start of the Space Race: "this is what I have meant all along by saying the 'medium is the message,' for the medium determines the *modes of perception* and the *matrix of assumptions* within which objectives are set."[38] It's not the media alone then that deserve our attention as some have assumed, but specifically their *interplay with the human subconscious*. McLuhan often borrowed the terms "figure" and "ground" from gestalt psychology to describe this opposition, but his language in the report is precise: by "modes of perception" he is again referring to St. Thomas Aquinas's psychological doctrine of inner sensitive powers. These percepts are the 'ground' that both precede and are active in drawing out the 'figures' of any conceptual thought.[39]

McLuhan always sought out these "grounds", hidden only by human ignorance of their existence. He called himself a "grammarian", concerned with the discovery of valid premises over any logical disputation on top of them. His study of the "training of sensibility" in Modernist & Symbolist poetry is one example of this, just as his depiction of advertising as a "magical institution" whose art is to implicate deeply held and unrecognized assumptions derived from their audience.[40] In both cases, all the real action takes place not in the poem or ad itself but rather subliminally in the true sense of the word – that is, in the audience's subconscious – with the 'content' serving as whatever bait suitable to ensure that process remains hidden. McLuhan held that none of these technological "environments" are self-evident but rather concealed as givens. They require guided exploration and careful study in order to reveal their nature. In that same 1960 report, McLuhan reduced all his recommendations to just this: "study the modes of the media, in order to hoick all assumptions out of the subliminal, non-verbal realm for scrutiny and for prediction and control of human purposes" – or put more simply: to literally "understand media" by rendering it intelligible.[41] He encouraged his students to retrace the stages of intellectual apprehension through the senses (i. e. limited to the exterior senses) in order to recognize the etymologies of our assumptions, instead of mistakenly ascribing

the psychological boundaries determined by manmade environments to “the fates” or “the will of God”.[42] He insisted, no, “we are doing it to ourselves”.[43]

How do these technologies change our behaviors & attitudes beyond our ability to notice and anticipate them? How can a human being maintain their dignity undergoing these jarring shifts to their psyche, let alone keep any semblance of “free will”? The basis of his work was grounded in St. Thomas Aquinas’s doctrines of formal causality and the faculties of perception: through careful examination of our senses we can discover how these various man-made forms reshape our souls. With formal cause as a principle, technologies are not “neutral” but rather active forms that implicate the sensibility of their users as content. Any change in these modes is inevitably bound up with “revolutionary social and political consequences”, as new distinct forms of culture are built up suited to the structure of these new habits.[44] Any “use” of any technology employs our bodies, organs, and senses in different configurations — each configuration producing different worlds valued by different measures.

The wealth of discovery from accounting for the common sense’s reception of sensible forms led Marshall to think in terms of a dichotomy of human sensibility. This, after all, appeared to be what Joyce had lifted from St. Thomas. When he began to pull on this thread, all of his discoveries pointed to behaviors & attitudes as being shaped by patterns concealed within the structures embedded within different forms of human communication. Speech, for instance, presented an all-encompassing audile-tactile world that produced men with audile-tactile biases; while the written word contained speech but transformed it - producing a highly visual world that produced men with visual biases in the process. The sensory world of the audile-tactile or “tribal” man was said to be shaped by the properties of “acoustic space”: all-at-once, multi-sensuous, resonant, multi-locational, discontinuous, abrupt, every point becomes its own center; that is, center everywhere, margins nowhere. He lives by the interval.[45] The world of the visual or “literate” man was said to be characterized by properties of “visual space”: sequential, univocal, lineal, planar, connected, orderly, a place for everything and everything in its place; along with it the creation of a wholly private identity. He lives by detachment and abstraction.[46]

Analogy then is etymologically a “re-wording” or “re-verbing” that led Marshall to relate it to the world of acoustic sensation. Logic, however, was only made possible by the alphabet’s production of a highly ‘visual bias’. In his final interview, he said to Bruce Powers:

> Have you noticed that one cannot visualize geometric figures except in a void [i.e. there are no actual circles or triangles in the world of things]? This characteristic is an essential clue to understanding Euclidean space. It is not the whole of nature, it is an abstraction, an imaginative invention.[47]

The magnum opus of this effort is the posthumously published book *Laws of Media*, which Marshall co-authored with his son Eric. Relating to his time with Wilhelmsen, it was originally meant to be titled "the phenomenology of the media". In this, Marshall uses these "visual" and "acoustic" subconscious modes of being to counter the phenomenologists (like Heidegger) and Jungian psychologists who had been increasingly replacing any understanding of faculties.[48] When it came to the question of how these different sensibilities play out in human neurology, Marshall pointed to the bicameral split of left-brain (which he termed 'visual') and right-brain (which he termed 'acoustic'). There is no treatment of the inner senses here at all.[49]

In 1979, before a stroke rendered Marshall speechless, he constructed two "tetrads" in this book, which were heuristics to get at the total structural effect of any human artefact. "Computer", he writes, retrieves "perfect memory, total and exact" - while Television, flips into the "inner trip".[50] Marshall himself adopted an "acoustic" mode, and saw it necessary to deal with all the media at once "or else pay the price of irrelevance and unreality." Further, in terms we may recognize within the scope of his understanding of the common sense:

> He must deal with each medium as it affects all of our senses, not as it makes one impression on one sense. Because any medium which singles out one sense, writing or radio for example, by that very fact causes an exceptional disturbance among the other senses.

Marshall is here writing about the exterior senses alone, as they interface with the *sensus communis*. Radio would present auditory impressions in high-definition, leaving any visual "completion" up to the listener.

> Nothing could be more unrealistic than to suppose that the programming for such media could affect their power to re-pattern the sense ratios of our beings. It is this ratio among our senses which is violently disturbed by media technology. And any upset in our sense-ratios alters the matrix of thought and concept and value. [...] I hope to show how this ratio is altered by various media and why, therefore, the medium is the message or sum-total of effects.

This is his way of saying: whatever you say over the radio will be presented under the sensory configurations of radio. There is no changing the sensory impact of that form of communication without changing the medium itself.

> And just as our individual experiences of our individual senses get processed by some sort of inner <u>common</u> sense which gives unity to the diversity of our senses, so with the media as extensions of our senses. These cooperative technological extensions of ourselves undergo a social or communal processing which gives them unity, and which ensures also that they will always be

changing their forms as they continue to inter-penetrate and to 'translate' into one another."[51]

In a word, we can say that Marshall wound up very accurately surveying and cataloguing a history of imagination, audile imagination, visual imagination, by searching through the writings of poets. Joyce, St. Thomas, Shakespeare, Milton, Donne, Eliot, and the living reality of the everyday people of his times — especially as their sensibilities and assumptions serve as the formal cause for advertisements. For McLuhan and St. Thomas, the intellect makes all humans poets. But through McLuhan's discussion of the "interior landscape" and "the training of sensibility" he made himself out to be a fierce advocate for the sensitive faculties of the soul (percepts) as being a necessary condition for the work of the intellectual faculties (concepts).

The basis of McLuhan's emphasis on the senses came from St. Thomas Aquinas's commentaries of Aristotle's psychological works. But with St. Thomas, five external senses are drawn from the "sensible" to the "intelligible" explicitly with the aid of four *inner* senses — with its organ proposed to be three different "ventricles" or "cells" in the front, middle, and back of the brain. Marshall's studies, proposals, and experiments ended at the "common sense" — the first inner sense, and the "term" of the "exterior sensorium". We hope with a fuller account of the imaginative, cogitative, and memorative powers, more can be done to lift up the effects of media on our subconscious into the verbal realm for study and open discussion.

## CONCLUSION

As we undergo yet another technological revolution in the form of the digital environment, we have the opportunity to pick up where Marshall and Eric McLuhan left off. It was near the end of his life that Marshall began to see the missing pieces of the puzzle. We are here retrieving, just as the McLuhan's attempted, an account of the human soul which has not been considered in its full depth since the Middle Ages.

Even such a brief walk on this trail reveals that there is a vast and intricate history to what we today call "sense-making". As schools, businesses, governments, and Churches rush to "make sense" in an age of rapid change — using tools of digital media, most likely — we should be aware of the opportunity at hand to avail ourselves to uniquely human tools of understanding developed since at least St. Thomas, which were long-suppressed precisely by a dominant technocratic paradigm.

## NOTES

1. What separated Wundt's work from his predecessors in modern psychology (e.g. Vives, Wolff) is an integration with mathematical formulae inherited from Gustav Fechner, meant to detect and measure thresholds of discernment among the exterior senses. He presented an "Apperception Schema" of sensory stimulus, motor functions, and reaction times - with measurements provided by chronometers, kymographs and other tools to aid in collecting sensory input.

2. Issued August 4th 1879, the aim of the encyclical Aeterni patris was to advance the revival of scholastic philosophy - namely that of St. Thomas Aquinas. Cardinal Tomassao Zigliara, a Dominican professor at the College of Saint Thomas, was the main expert tapped by Pope Leo XIII. He soon authored a Thomist manual titled Psychologia in Latin - arguably the most faithful representation. In it, he dealt explicitly with psychological innovations from Fr. Rosmini and Suarezian Fr. Tongiorgi of a "sensus fundamentalis".

3. Addressing the new psychophysics was so crucial to Pope Leo XIII's mission that before Leuven's Higher Institute was founded, he sent its future head Fr. Desire Mercier in disguise to study at Wundt's Experimental Psychology lab in Leipzig. Mercier also sent his chair of psychology Armand Thiery who actually earned a Ph.D under Wundt. Pope Leo XIII wrote that the chair of this new school "must have studied the philosophy of the Middle Ages in the sources and not in the textbooks; he must also know the philosophy of Kant, he will have to follow the development of the sciences, of psychophysics, of cellular microscopy".

4. Pope Leo XIII had anticipated that the attempted revival of scholastic philosophy would be met with clerical resistance. Even after sending a nuncio to Brussels to smooth things over between the school and the Jesuits, a request for a special course in Thomist philosophy was met with evasive replies. On Christmas Day 1880, he wrote Cardinal Deschamps tasking him to be the special chair of Thomistic Philosophy in an elective course at Leuven. The Belgian Bishops did not respond enthusiastically, as a bitter struggle with the government over religious education in primary schools had taxed their resources and made them reluctant to appear as agents of a foreign power in Rome. Cardinal Deschamps refused, and the Belgians suggested Monsignor Alois van Weddingen in his place, but he too was dismissed for personal reasons on account of his being court chaplain to King Leopold II. In frustration, Pope Leo XIII sent, at his own expense, an able young Dominican bishop Hyacinthe Rossi to Belgium. A telegram stopped the Dominican, who got no further than Trent on his way north.

Van Weddingen then suggested the 30 year old Father Mercier should be appointed. The Belgian bishops concurred. The Vatican called for Mercier to Naples where he was to meet with Cardinal Zigliara and others. Pope Leo XIII asked: "Do you love St. Thomas?" The young Fr. Mercier replied: "Very much, Your Holiness. I believe I can answer that I have loved him in my past teaching. I can certainly answer with confidence that I love him now and will do so in the future."

5. Everywhere but the Higher Institute and the Angelicum, the scholastic revival was led by the Jesuits. In England, Michael Maher's manual Psychology defers to Suarez. The same is true in German manuals. Even Fr. Mercier's own "Psychology" fails to account for the cogitative power's relationship with the intellect.

6. The Higher Institute of Leuven and the Angelicum are examples of the schools founded to defend this doctrine - the measure of their failure is their inability to teach the inner senses in the appropriate depth.

7. Phelan's 1925 dissertation was completed under Dr. Albert Michotte, who had studied both with Wilhelm Wundt and with Oswald Kulpe, the predecessor of Gestalt psychology. Phelan's dissertation contains no references to the faculties of the soul. Fr. Fulton Sheen studied alongside Fr. Phelan, the title of his dissertation being "God and Intelligence in Modern Philosophy". Sheen describes the faculties and gets as far as the sensus communis before skipping over the inner senses straight to the intellect. G. K. Chesterton wrote the introduction to Longman's publication in 1925.

8. G. K. Chesterton: A Practical Mystic. Dalhousie Review, Vol 15, No. 4, 1936.

9. St. Thomas and Analogy (Aquinas Lecture 5). Marquette University Press. 1941. Eric McLuhan "heartily recommended" it to me, and Marshall's copy is annotated. "The importance of analogy in the philosophy of St.

Thomas literally cannot be overestimated. There is not a problem either in the order of being, or in the order of knowing, or in the order of predicating, which does not depend for its ultimate solution on the principle of analogy. Not a question can be asked either in speculative or practical philosophy which does not require for its final answer an understanding of analogy."

10. Joyce, Aquinas, and the Poetic Process. Renascence. Volume 4. No. 1. 1951.

11. Courtesy of the James Joyce Collection at the Harry Ransom Center. Austin Texas.

12. Correspondence between McLuhan and Wilhelmsen courtesy of the National Archives Canada. No published biography has an account of McLuhan and Wilhelmsen's relationship.

13. Muller-Thym was called "the most brilliant young medievalist in America" by Etienne Gilson in 1936. Fr. Phelan was the nihil obstat on his dissertation: The Establishment of the University of Being in the Doctrine of Meister Eckhart of Hochheim.

14. Ibid.

15. Courtesy of Marshall's handwritten notes at the University of Toronto's Fisher Library.

16. Ibid.

17. As his Ford Foundation-funded journal EXPLORATIONS ended in 1957, McLuhan was contacted by Harry Skornia of the National Association of Educational Broadcasters about an upcoming project. That next year, the NAEB received a Title VII grant from the National Defense Education Act to come up with a new media syllabus for middle school students, and McLuhan was selected to produce the report. Dubbed "project 69", McLuhan embarked on tours meeting with business executives and heads of public schools. In 1960 as he was preparing his findings for publication, McLuhan rekindled correspondence with Muller-Thym and enclosed his own "media charts".

18. See Cameron McEwen's reports on this topic on his blog mccluhansnewsciences.com, under the tag "Report on Project in Understanding New Media".

A letter from McLuhan to Samuel Becker, chair of the NAEB 1959: "I think my Gutenberg book will offer a sufficient quantity and continuity of testimony on the effects of the forms of writing and printing to make this completely convincing, because one has only to consult the changes in the arts of poetry, and prose, and painting under the impact of various developments in print technology, to trace the exact lines of force which that technology exerts. This raises a very basic question about media research. I mean the factor of translation from one language into another as revealing the properties of both."

19. Eric McLuhan. The Sensus Communis, Synesthesia, and the Soul: An Odyssey. 2015. BPS Books.

Here, Eric is introducing a quote from And There Was Light, the autobiography of Jacques Lusseyran - a blind French resistance member against the Nazi party, who lost his vision in a childhood accident. The entire quote is worth including here, as Marshall often employed it to those who attempted to "conceptualize" his work.

When I came across the myth of objectivity in certain modern thinkers, it made me angry. So there was only one world for these people, the same for everyone. And all the other worlds were to be counted as illusions left over from the past. Or why not call them by their name- hallucinations? I had learned to my cost how
wrong they were.

From my own experience I knew very well that it was enough to take from a man a memory here, an association there, to deprive him of hearing or sight, for the world to undergo immediate transformation, and for another world, entirely different but entirely coherent, to be born. Another world? Not really. The same world, rather, but seen from another angle, and counted in entirely new measures. When this happened, all the hierarchies they called objective were turned upside down, scattered to the four winds, not even like theories but like whims.

The psychologists more than all the rest - there were a few exceptions, Bergson among them - seemed to me not to come within miles of the heart of the matter, the inner life. They took it as their subject but did not talk about it. They were as embarrassed in its presence as a hen finding out that she has hatched a duckling. Of course, I was more uneasy than they were when it came to talking about it, but not when it came to living it. I was only sixteen years old, and I felt it was up to them to tell me. Yet they told me nothing.

(Lusseyran, 1963).

20. To Bernard and Mary Muller-Thym (June 11, 1974).

21. Thought: Fordham University Quarterly. James Joyce: Trivial and Quadrivial. Volume 28. No. 1. Spring 1953 (pp. 75-98). This is a rare mention of interior senses by name in McLuhan's writing.

22. The quote comes from Richard Kostelanetz's profile of Muller-Thym in his 1969 collection Master Minds: Portraits of Contemporary Artists and Intellectuals. In January 1941, Muller-Thym was pressured by Jacques Maritain to apologize to Mortimer Adler in an issue of The Modern Schoolman. In the previous issue (Nov 1940), Muller-Thym had written a critique of Adler's "Problem's For Thomists" series which had just begun in another quarterly, The Thomist. Muller-Thym takes issue with Adler's understanding of "species".

"He has been willing to throw out the Posterior Analytics, to revise St. Thomas's doctrine of matter and form (which, in some strange way, he does not understand will destroy all the doctrine of being and of act and potency), to consider the present issue not to have been clearly understood by either Aristotle or St. Thomas because both of them tend to let logical considerations too much obtrude - indeed no purge is too drastic; the one thing Professor Adler has refused to do is ever to reconsider his own position, to submit himself to that discipline without which no man becomes a philosopher."

23. Maritain issued his own reply: (Concerning a "Critical Review"), The Thomist. Volume 3. No. 1. Jan 1941. It begins with a quote from St. Ignatius of Loyola implying that Muller-Thym was not a "good Christian" for critiquing Adler's work in this way.

"It must be presupposed that every good Christian should be readier to excuse than to condemn a proposition advanced by his neighbour; and if he cannot justify it, let him enquire into the meaning of the author: if the latter be in error, correct him lovingly; should that not suffice, then let him employ every suitable means, so that his neighbour, rightly understanding it, may be saved from error." -St. Ignatius Loyola

Maritain himself continues:

"It is regrettable that Mr. Muller-Thym did not follow the rules of interpretation outlined by St. Ignatius, who advises us in such cases to have regard to the thought rather than the words; and that he did not try to surmount the obstacles created by the words in the present discussion. [...] Mr. Muller-Thym will regret the injustice he has done today. It seems to me an urgent matter to be on guard against those practices of controversy which, if they are allowed to become established, would ruin and render sterile the Thomist renaissance of today just as they ruined and rendered sterile Scholasticism of the fourteenth and fifteenth century."

Muller-Thym promptly quit teaching philosophy and left for New York City to train WAVES for the Navy. He then followed up with a career in a management consultancy (initially at McKinsey & Co) before going freelance. He taught management seminars at Columbia University and briefly held a faculty position at MIT, but never taught philosophy per se again.

Muller-Thym to Gilson, Jan 27 1956

"I was touched and a little astonished too at your request to publish the dissertation on Eckhart and on Albert the Great. I imagine you must be referring to the four or five lectures I gave in 1938 after I had completed the work for the doctorate and was giving the additional lectures for the licentiate in mediaeval studies. [...] It is touching to read your statement, 'they are still ahead of the present historical situation.'"

24. Ibid.

25. Here, despite the detective work given to retracing the exterior senses, is McLuhan's most glaring omission of the action of St. Thomas's inner sensory faculties, basically in Joyce. This essay would be cited by Umberto Eco in his own dissertation. The "poetic process" is the action of the agent intellect, which in St. Thomas is facilitated by the "conversio ad phantasmata" through its touching upon the intentions of the vis cogitativa.

26. An attempt to reach out to the Wilhelmsen estate was not answered.

27. June 27, 1975. Letter to Marshall McLuhan from Frederick D. Wilhelmsen. Courtesy of the National Archives Canada.

28. July 31, 1975. Letter to Frederick D. Wilhelmsen from Marshall McLuhan. Courtesy of the National Archives Canada.

29. The Argument: Causality in the Electric World. Marshall McLuhan and Barrington Nevitt. Technology and Culture. Vol. 14, No. 1. (Jan., 1973). pp. 1-18.
Comment: Effects Precede Causes. (pp. 19-21). Fr. Joseph Owens CSSR.

Comment: Through a Rearview Mirror-Darkly. (pp. 22-27). Frederick D. Wilhelmsen.

30. Letter from Marshall McLuhan to Jacques Maritain on May 6, 1969. In The Medium and the Light: Reflections on Religion and Media. Wipf & Stock. (1999); The Letters of Marshall McLuhan. Oxford University Press. (1987).

31. "On Formal Cause". Eric McLuhan. In Media and Formal Cause. NeoPoiesis Press. 2011.

"Because the tetrads apply exclusively to human utterances and artifacts, it follows that formal cause is uniquely and particularly human. That is, and I believe this to be crucial, absent human agency or intellect there is no formal cause at all. Certainly all of the elements of the tetrad, the four processes, are both formal and causal. And conformal. And I have elsewhere discussed the tetrad’s identity with logos and definition."

32. See Marshall McLuhan's citation in The Gutenberg Galaxy (1962) to St. Thomas Aquinas's Summa Theologica III, q. 42, a. 4 concerning Christ as teacher: Utrum Christus debuerit doctrinam Suam Scripto tradere.

33. Aristotle. On The Soul Book II. 412b9.

34. Marshall McLuhan. The Gutenberg Galaxy: The Making of Typographic Man. University Of Toronto Press. 1962.

35. Herbert Marshall McLuhan. The Classical Trivium: The Place of Thomas Nashe in the Learning of His Times. Cambridge University. Dissertation. Dec 11 1943.

36. Marshall McLuhan. Understanding Media: Extensions of Man. McGraw-Hill Education. 1964.

37. The Argument: Causality in the Electric World. Marshall McLuhan and Barrington Nevitt. Technology and Culture. Vol. 14, No. 1. (Jan., 1973).

38. Marshall McLuhan. Report on Project in Understanding New Media. National Association of Educational Broadcasters. Department of Education. 1960.

39. Cf. Summa Theologica I Q 78 a4.

40. Cf. Herbert Marshall McLuhan, "Advertising as a Magical Institution." in The Commerce Journal: University of Toronto Commerce Club, 1952. pp. 25-29; "American Advertising." in Horizon. No 93-94, October, 1947. pp. 132-41; The Mechanical Bride: The Folklore of Industrial Man. Vanguard Press. 1951.

41. Marshall McLuhan. "The Relationship of Environment to Anti-Environment." The Windsor Review. 2.1. (Fall 1966).

42. Marshall McLuhan to Fr. John W. Mole OMI, Jan 29 1974. in The Medium and the Light: Reflections on Religion and Media. Wipf & Stock. (1999).

"These kinds of psychic oscillation resulting from large environmental change are no longer necessary, any more than the plague. Psychic diseases can now be treated for what they are, namely manifestations of the response to man-made technologies. Environmental noise and disturbance can be controlled as readily as the unhygienic conditions that prevailed until recent times. The psychic effects of TV are no more necessary than the physical effects of polluted drinking water. As long as people persist in ignoring the subliminal and hidden effects of media on psyche and society, they will attribute these things to the 'will of God.'"

43. "Liturgy and the Microphone," in The Medium and the Light: Reflections on Religion and Media. Wipf & Stock. (1999) "The ordinary and development attitude towards innovation assumes that there is a technological imperative: 'If it *can* be done, it *has to be* done'; so that the emergence of any new means *must* be introduced, for the creation of no matter what new ends, regardless of the consequences. Lineal and revolutionary ideas of development naturally derive from visual culture, which is no longer the form of the electric and acoustic age. What had been seen as inevitable, in visual and lineal terms of development, appears to the electronic man as merely one of many possible programs."

44. Herbert Marshall McLuhan. Catholic Humanism and Modern Letters. McCauley Lectures, St. Joseph College. Hartford, Connecticut. 1954. pp. 49-67.

45. Cf. John Artibello. St. Thomas and the Non-Visual:  The Audile-Tactile Aspects of the Notion of Participation. 1974. Artibello was a doctoral student of McLuhan's whose work had been sent to Frederick D. Wilhelmsen.

46. Cf. John Artibello. St. Thomas and the Non-Visual:  The Audile-Tactile Aspects of the Notion of Participation. 1974.

47. Marshall McLuhan. Bruce R. Powers. The Global Village. Transformations in World Life and Media in the 21st Century. Oxford University Press. 1989.

48. McLuhan devotes the title chapter of Laws of Media to an analysis of Jung's "archetypes" as a disembodied faculty or power of the soul:

"Jung and his disciples have been careful to insist that the archetype is to be distinguished from its expression. Strictly speaking, a Jungian archetype is a power of capacity of the psyche. Nevertheless, even in Jung's writings the term is used with interchangeable senses. In Psyche and Symbol Jung declares that 'the archetype is an element of our psychic structure and thus a vital and necessary component in our psychic economy. It represents or personifies certain instinctive data of the dark primitive psyche: the real, the invisible roots of consciousness.' Jung is careful to remind literary critics to consider the archetype as a primordial symbol. [...]

[...] Jung accounts for his theory of archetypes by means of the hypothesis of a collective race memory, although he is well aware that there is no scientific acceptance for such an idea. His justification, however, for using the concept of a collective memory is based on the recurrence over a wide area of archetypal patterns in artefacts, literatures, arts, and so on, apart from the shaky scientific basis. While a new form or technology pervades the host culture as a new cliche, it simultaneously consigns the former and now obsolete cliche or homeostasis to the cultural rag-and-bone shop."

49. Chapter two in Laws of Media is devoted to treating behavioral scientist Robert Trotter's chart of cerebral hemispheres. This marks the first time McLuhan ever attempted a neuroscientific study based on differences among sensory ratios. Trotter was the editor of Science News, where he also wrote on topics such as transcendental meditation.

McLuhan uses this chapter to analogize the biases of "acoustic" simultaneity and "visual" lineality in the brain with "right-hemisphere" and "left-hemisphere" respectively.

50. The full tetrads read as such:

**Computer**

*Enhances*
Speeds of calculation & retrieval

*Retrieves*
Perfect memory - total & exact

*Reverses into*
Anarchy via the overlay of bureaucracy

*Obsolesces*
Sequence, approximation, perception, the present

**Television**

*Enhances*
The multisensous, using the eye as hand and ear

*Retrieves*
The occult

*Reverses into*
Inner trip: exchange of inner and outer

*Obsolesces*
Radio, movie, point of view

51. Marshall McLuhan. Report on Project in Understanding New Media. National Association of Educational Broadcasters. Department of Education. 1960. (p. 9, 18).

## BIBLIOGRAPHY


Kenner, Hugh. *Paradox in Chesterton ... Introduction by Herbert Marshall McLuhan*. 1948.

Kugelmann, Robert. *Psychology and Catholicism: Contested Boundaries*. Cambridge: Cambridge University Press, 2011.

Leo XIII. *Rerum novarum*. Vatican City: Vatican Press, 1879.

Maritain, Jacques. *Correspondence*. 6 May 1969. NAC. H.207/434.

McLuhan, Eric. The Sensus Communis, *Synesthesia, and the Soul: An Odyssey*. BPS Books, 2015. Lecture.

McLuhan, Marshall. "Joyce, Aquinas, and the Poetic Process." In *Joyce's Portrait: Criticisms and Critiques*. Edited by Thomas E. Connolly. New York: Appleton-Century-Crofts, 1962.

McLuhan, Marshall. "James Joyce: Trivial and Quadrivial." *Thought: Fordham University Quarterly*. 28, no. 1. (Spring 1953), 75-98.

McLuhan, Marshall, and Eric McLuhan. *Laws of Media: The New Science*. Toronto: University of Toronto Press, 1988.

McLuhan, Marshall, and Eric McLuhan. *Media and Formal Cause*. Neopoiesis Press, LLC, 2011.

McLuhan, Marshall and Powers, Bruce R., *The Global Village: Transformations in World Life and Media in the 21st Century*. Oxford University Press. 1989.

McLuhan, Marshall. *Report on Project in Understanding New Media*. Washington: National Association of Educational Broadcasters, 1960.

Muller-Thym, Bernard J. "The Common Sense, Perfection of the Order of Pure Sensibility." *The Thomist: A Speculative Quarterly Review* 15, no. 4 (1940), 315-343.

Phelan, Gerald B. *Saint Thomas and Analogy*. Marquette University Press. 1941.

Wilhelmsen, Frederick D. *Correspondence*. 17 June 1975. NAC. H.207/434.

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# The Inner Senses and Human Engineering

**Mark Stahlman**

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**ABSTRACT:** Knowledge of Faculty Psychology, a topic which describes Western understanding of the psyche from 4th-century BC Aristotle's *Peri Psyche* through more than two millennia of commentary and application, was quickly replaced with “experimental” psychology in the 19th-century, a shift that persists through to today. In this process, many thought that the human “soul” was not suitable for empirical examination, so it was abandoned for this psychological research. As a result, psychology lost its philosophical/theological foundations and instead often turned into an effort to engineer “better” humans. New “images” of what it meant to be human were proposed and the goal of engineering a new society often became the motivation for psychological inquiry. Our view is that this shift has had mostly negative results, neither making humanity more sane nor more happy, while resulting in a society that increasingly seems consumed by chaos. Accordingly, we believe that a retrieval of Faculty Psychology is urgently needed for our current digital age.

Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has. -Margaret Mead (attributed, 1901-1978)

## HUMAN NATURE AND MIND CONTROL

"Changing the world," of course, means changing the people in it. But how is that to be accomplished? Changing human "nature" would seem to be Mead's answer. Engineer a new sort of human – based on the science of "experimental" psychology. To accomplish this, however, would require abandoning the earlier understanding of the psyche and replacing it with a "scientific" approach that lent itself to this engineering. Human engineering. In that process, the understanding of the "inner senses," as had been the psychological consensus for more than two millennia, had to be discarded. That version of humanity was now obsolete. New theories, new "treatments" and a new world required that these be forgotten.

Today, the time has come to bring them back. We will need to retrieve that earlier understanding to deal with the robots. Understanding what it means to be human has become our most compelling priority.

One of Mead's closest collaborators, by some accounts even helping to raise her first child, was Lawrence K. Frank (1890-1968), a Rockefeller family-of foundations executive. Frank moved from the Laura Spelman Rockefeller Memorial to child-development at the Rockefeller Foundation and was a vice president of the Josiah Macy, Jr. Foundation, famous for its Cybernetics Conferences (1946-53), as well as its 1954 Neuropharmacological Conference, concentrating on the then-new subject of LSD. Frank's final project resulted in the American Academy of Arts and Sciences (AAAS) Commission on the Year 2000[1], chaired by sociologist Daniel Bell, perhaps the last effort on that scale to attempt to predict the future – including an expansive 200+ year economic forecast contributed by the Hudson Institute,[2] since, as it turned out, they failed to capture the actual future at all. Nope, no Internet.

In 1951, Frank published his *Nature and human nature: man's new image of himself.*[3] In it he rejoices that science has finally "overcome superstition" and that humanity was now on the path to "shaping its own destiny." All we needed was a "new image," a theme that many others would later pick up on. The theme was continued by Fred Polak (1907-1985), a leading Dutch futurist, in his 1953 *Image of the Future: Enlightening the past, orientating the present, forecasting the future*.[4] Kenneth Boulding (1910-1993),[5] a leading economist and Quaker "mystic" who had met Polak at the inaugural meeting of the Center for the Advanced Study of Behavior[6] would publish his 1956 *The Image,*[7] in which he put forward a new approach he called "Eiconics" (later to be renamed "memetics" by Dawkins in his 1976 *The Selfish Gene*).[8]

After years of private circulation, *The Changing Image of Man,* based on a project supervised by Willis Harman (1918-1997) and conducted by Stanford Research International (SRI, initially funded by the U.S. Dept. of Education), was finally published in 1982 (with major contributions by Elise Boulding). The Introduction begins with, "In

this study we attempt to discern fundamental and usually unrecognized influences on our societal problems, on our social policies, and on our hopes for the future."[9] In the report's "Introduction to the Pergamon
Edition," its impact was evaluated by highlighting Marilyn Ferguson's 1980 *Aquarian Conspiracy*, referred to as coming from "a proponent's point of view." Harman who would go on to head the Institute of Noetic Sciences in Sausalito, and also wrote *Global Mind Change*,[10] played a key role in establishing the "Towards a Science of Consciousness"[11] conferences (initially funded by the Maharishi Mahesh Yogi, of Transcendental Meditation fame).

A New Age was in the air. Suitable for a new "image of man." But, as always, there was another side to the coin. In 1978, Walter Bowart (1939-2007), founder of the early "underground" newspaper the *East Village Other*, published his *Operation Mind Control,*[12] which pointed towards a much more sinister underlying phenomenon. He keyed in on the CIA's "Project MKULTRA," as had recently been exposed in the 1975 Senate Church Committee hearing (also leading to today's Congressional oversight over U.S. intelligence activity),[13] Bowart hinted at dark forces who were trying to "brainwash" us. The foreword was written by Richard Condon, author of *The Manchurian Candidate* (1959, later made into a 1962 political thriller, starring Frank Sinatra, plus a more recent remake). If humans could be "engineered," then an idyllic new age wasn't the only (or even most obvious) outcome. What if they could be "programmed" to "kill? Or even "enslave" themselves or, indeed, to be harnessed to make a "worse" world?

## SCIENCE OF COERCION

Modern psychology also gave us psychological warfare. H.G. Wells was hired by Fleet Street's Lord Beaverbrook to help portray the Germans as "Huns" in WWI. "Propaganda" became a major concern, leading to many efforts to try to understand its mechanisms. Events in Germany elevated the urgency. If the ostensibly well-educated/behaved Germans could be driven to such extremes, then what caused this to happen and what techniques/technology was involved? Could it be countered? Could it be taken advantage of? Could it be improved to involve the "target" in their own coercion.

Stimulated by Hitler's rise to power, the Rockefeller Foundation launched its famous "Radio Research Project"[14] in the late 1930s, initially headed by Paul Lazarsfeld, the "father of empirical sociology," first at Princeton and then at Columbia University (1901-1976). Lazarsfeld hired Theodor Adorno (1903-1969) for the "Project" to work on the psycho-social impact of popular music (Adorno was also a composer). They fought over the application of "statistics" to the problem and Adorno left. But he soon returned at the head of a new effort, resulting in the publishing of *The Authoritarian Personality* in 1952,[15] long treated as the "handbook" of the burgeoning field of Social

Psychology, which had absorbed many engaged in psy-war in WWII. In it, Adorno &al proposed an “F scale” (named after “fascism,” understandable since Adorno was affiliated with the Marxist/Freudian Frankfurt School). Adorno's 1927 habilitation thesis had been titled “The Concept of the Unconscious in the Transcendental Theory of the Psyche.”

Christopher Simpson skillfully traced the history of psychological warfare transitioning into academia in his *Science of Coercion: Communication Research and Psychological Warfare, 1945-1960*.[16] The dust-jacket introduces the volume by saying, “In this provocative study, Christopher Simpson demonstrates how the government-funded psychological warfare programs of the Cold War years underwrote the academic studies that formed the basis for much modern communications research.” Like the work of Frances Stonor Saunders with her *The Cultural Cold War: The CIA and the World of Arts and Letters*[17] (originally titled *Who Paid the Piper?*, as well as her other books, plus Simpson's and others), the focus has been on trying to find someone to blame. But, given the context that produced psy-war, tracing back to the origins of experimental psychology a century earlier, a wider view might well consider these developments to be far more “systematic.” Many more were implicated. In 1953, the Ford Foundation, which by then had taken over many of the research topics previously paid for by the Rockefeller agencies, funded an extension to the earlier Radio Research Project by awarding a $43,000 grant (roughly $400,000 in today's money) to Marshall McLuhan and the Inuit-studying anthropologist Edmund “Ted” Carpenter to research “The Changing Patterns of Language and Behavior and the New Media of Communications.”[18] This was the television update to the previous study on radio and it launched McLuhan's career as a “media guru.” McLuhan was no “statistician,” like Lazarsfeld had been. He described himself as a “grammarian” (with expertise in rhetoric) and he took an expansive view of the effects of the media itself on people. Thus, “The Medium is the Message.”[19] An English professor, with significant knowledge of the artistic movements which paralleled the rise of experimental psychology, beginning with French Symbolism, McLuhan had been clipping into, analyzing and lecturing on the effects of advertising for years. What would later be captured in the *Mad Men* television series reflected what McLuhan considered to be the greatest “art” of his times. It was a quite manipulative art, to be sure.

Is advertising “psychological warfare” (or just a close cousin)? In a recent conversation with an American anthropologist who moved to Japan to work in advertising, he suggested that the goal of his industry was to “seduce the affections of 13 year-old girls, since that's when brand allegiance is formed.” Maybe child-abuse would be a better term? Perhaps the current furor over “misinformation” and “election interference” is instructive. Overall, these concerns are, once again, superficially trying to place blame and are rooted in political motivations. But this has drawn attention to what B.J. Fogg described in his 2002 book *Persuasive Technology: Using Computers to Change What We Think and Do.*[20] Underlying this relentless psychological onslaught – begun by television-based advertisers long before the Internet exploded – attempting

to exploit whatever was needed to “sell” a product (once just goods and services and now spilling over into “dangerous” ideologies), was the continuing drive to “engineer” the population. Using psychology, which had transitioned from “behaviorism” to “cognitive science,” much effort was being expended to advance the creation of a “new man.”

## HUMAN ENGINEERING

In 1921, Alfred Korzybski (1879-1950) published his inaugural volume, *Manhood of Humanity: The Science and Art of Human Engineering*.[21] A Polish aristocrat who had studied engineering at Warsaw University of Technology, Korzybski served as an intelligence officer in the Russian army in WWI, later moving to Canada and settling in the U.S. Eventually he dropped the potentially offensive label “human engineering” and transformed it into what he termed “general semantics.” Based on his notion that humans cannot “directly” experience reality, he proposed that we needed to train our awareness of the “abstracting” process through which we understand the world. He linked this to the structure of language and traced the origins of our linguistic debilitation to Aristotle. His followers included S.I. Hayakawa (1906-1992) and Neil Postman (1931-2003).[22]

The manipulation of language to manipulate the psyche has had a long history. Esperanto was invented, following the 1893 “World Parliament of Religions” with the intent of instilling a one-world sensibility.[23] The British Empire's response and, for a time, a serious rival to the romance-language oriented Esperanto (until all these efforts collapsed) was called “Basic English.”[24]

Often focused narrowly on spoken languages and associated with anthropology, linguistics expanded into philosophy and other domains. However, attempts to expand the focus of the inquiry, such as McLuhan and Carpenter's 1956 essay “The New Languages,” failed to gain traction.[25] The collected essays of Benjamin Whorf (1897-1941) were also published in 1956, leading to the widespread adoption of the mislabeled “Sapir-Whorf” hypothesis (now termed “linguistic relativity”), which holds that language determines/influences thought, cognitive categories and, ultimately, our decisions.[26]

Perhaps the most famous of the linguists from that period (largely because of his ongoing political proclamations) is Noam Chomsky. An aggressive protagonist, as discussed in Randy Harris' 1993 *The Linguistics Wars*, Chomsky came to dominate the field. His tenure at MIT and his argumentative style, however, were not matched with decisive victory for his theories. His “genetic” theory termed “universal grammar” has been described as a “certain set of structural rules [that] are innate to humans, independent of sensory experience.”[27] If true, which current research largely discounts, one can imagine the use of such a grammar to “program” humans. Accompanied with “cognitive” psychology, where Chomsky was a pioneer in patterning humans on

computing devices, Universal grammar would point towards an underlying "microcode" upon which human activity rests.[28] The engineering hope remains, while the results remain meager.

Even the non-behaviorist "speculative" approaches to psychology were caught up in the "new human, new society" enthusiasm. In 1909, G. Stanley Hall (1846-1924), a student of William James at Harvard (and the first to gain a psychology doctorate in the U.S.), invited both Sigmund Freud (1856-1939) and Carl Jung (1875-1961) to lecture at Clark University (along with 27 others), where he had been named as its first president in 1889. In the U.S., Hall's influence was considerable, having founded the American Psychological Association, he was called "King Maker" by Saul Rosenzweig in his 1992 *Freud, Jung and Hall the King-Maker.*[29] Clark, located in Worcester, MA, was founded as an all graduate research university. This was a period in which many universities were joining together to radically reform higher education – with a particular focus on training other teachers – as reflected in the founding, by Hall, of the Association of American Universities. Aspects of this shift away from a more traditional approach are captured in Paolo Lioni's *The Leipzig Connection: The Systematic Destruction of American Education*.[30]

Psychology was at the center of this effort. Many believed that society's ills could be cured if the proper psychology was applied. Starting with the misbehaving children. A particularly chilling version of this "re-education" is detailed in Anthony Burgess's (1917-1993) 1962 *A Clockwork Orange* (later made into an iconic film by Stanley Kubrick, complete with its "droogs," as expressed in the Anglo-Russian slanguage "Nadsat").[31] Like many science fiction writers of his generation, Burgess, whose undergraduate thesis was on Marlowe's *Doctor Faustus*, had wide experience, including work with British intelligence during WWII in Gibraltar and as a teacher for the British Colonial Service in Malaya. Frequently, key events "behind the scenes" appear in fictional works. While most attention to "mind control" experiments tend to focus on the CIA, both British and Canadian intelligence also had parallel projects, as did many others. In fact, it became a staple of the Cold War ("cold" because it was a psychological war). The aversion therapy, with which ends the book/movie, along with a panoply of drugs &c. remains a part of "behavior modification" today. New human; new society.

## EXPERIMENTAL PSYCHOLOGY

Why would you want to experiment on the human psyche? Psyche (or *psuche*) is Greek for what is usually termed the "soul" in English (and sometimes "mind," although the Greek *nous* would seem more appropriate for that). Both Plato and Aristotle had a lot to say about the psyche, as have thousands after them. There is even a Greek mythological figure named Psyche, described as "a maiden beloved by Eros." Aristotle is considered by many to have "fathered" the field that came to be known as

psychology (or, in etymological terms, the "study of the psyche") in his 4th-century BC classic, *Peri Psyche*.[32] So, why would you want to experiment on the human soul?

Michel Ferrari has suggested three reasons in his introduction to a special 2010 issue of "History of the Human Sciences":

> The history of the science of consciousness is difficult to trace because it involves an ongoing debate over the aims involved in the study of consciousness that historically engaged people working in a variety of different, often overlapping, philosophical projects. At least three main aims of these different projects can be identified: (1) providing an ultimate foundation for natural science; (2) providing an empirical study of experience; and (3) promoting human well-being by relieving suffering and encouraging human flourishing. Each of these aims has its own problems and its own methods for solving them that endorse different epistemic virtues characteristic of science in different historical periods through a variety of 'styles of science'.[33]

No doubt many have had one or more of these "aims" in mind. But, to be comprehensive, one suspects that a fourth should be added: "(4) to manipulate populations in war and for commerce." To be sure, given current conditions in academia, this "aim" is not likely to be the focus of researchers like Ferrari, and many working in the field of "history of psychology" have tended to miss it. Leave it to the anthropologist Gregory Bateson to state it succinctly in a comment made in 1941, in response to a paper delivered by his then-wife Margaret Mead: "How would we rig the maze or puzzle-box so that the anthropomorphic rat shall obtain a repeated and reinforced impression of is own free-will?"[34] This "rig the maze" effort – presenting the population with the illusion of "free-will," a human quality now generally discounted by philosophers and neuroscientists alike – had already made great strides in the radio-era and was about to become far more methodical under television conditions.

Adam Curtis has documented many aspects of this "social constructivism" in his BBC series, particularly the 2002 "The Century of the Self." In the first episode (titled "Happiness Machines," followed by "The Engineering of Consent," "There is a Policeman Inside All Our Heads" and "Eight People Sipping Wine in Kettering") Curtis, who describes his politics as "libertarian," says, "This series is about how those in power have used Freud's theories to try and control the dangerous crowd in an age of mass democracy."[35] Edward Bernays (1891-1995), Freud's nephew, has been described as a "pioneer in the field of public relations and propaganda"[36] and he receives much of Curtis's attention. Also quoted in Curtis' documentary are the 1927 words of Wall Street banker Paul Mazar: "We must shift America from a needs- to a desire-culture. People must be trained to desire, to want new things, even before the old have been entirely consumed . . . Man's desires must overshadow his needs."

One doubts that Franz Brentano (1838-1917) had this sort of manipulation in mind when he published his 1867 *The Psychology of Aristotle* (his habilitation thesis) or the follow-on 1874 *Psychology from an Empirical Standpoint*. Ordained a Dominican priest in 1864 (leaving the priesthood in 1873 and the Catholic church in 1879, marrying in 1880), the same order that once supported Thomas Aquinas, Brentano had a stellar group of students at the University of Vienna (where he taught from 1874 to 1895), including Sigmund Freud, Edmund Husserl (a founder of Phenomenology), Rudolf Steiner (founder of Anthroposophy), Carl Stumpf (whose students later founded Gestalt Psychology) &c.[37] Martin Heidegger (1889-1976), although not Brentano's student in college, is reported to have been given a copy of Brentano's 1862 dissertation, *On the Several Senses of Being in Aristotle*, as a young man, perhaps shaping his own career and the trajectory of philosophy in the 20th century. How would Brentano have considered the "new human" applications of his call for psychological "empiricism"?

Perhaps Wilhelm Wundt (1832-1920) was closer to the linkage between psychology and cultural formation. Noted for his Leipzig laboratory, where many early "experimentalists" studied, Wundt approached these aspects of psychology as a physiologist.[38] In 1991, *American Psychologist* published a survey which ranked Wundt's reputation first for "all-time eminence." Far less noted is the wide-range of Wundt's interests, particularly his 10-volume work titled *Cultural Psychology: An investigation into developmental laws of language, myth and conduct* (1910-20). The German term used is "Volkerpsychologie" and its later association with promotion of the superiority of the German "Volk" probably explains its current obscurity. As it turns out, Wundt's wider interests are likely ignored by many today because he was quite clear that the psyche cannot be thoroughly explained by experiment techniques. Wundt's opposition to "empiricists," notably John Locke (sometimes referred to as "sensualists"), is reflected in his use of a quote from G.W. Leibniz on the title page of his 1862 *Contributions on the Theory of Sensory Perception*, which reads "Nothing is in the intellect that was not first in the senses, except the intellect itself."[39]

## DIGITAL INTUITION

Do Androids dream (of electric sheep)? No, they don't. Dream, that is – since, alas, they have no psyche (or, if you prefer, soul). Alas, this too is being challenged. Today there is a world-wide "arms race" underway to accomplish the breakthroughs needed to engineer Artificial General Intelligence (AGI).[40] It is widely agreed that today's "machine learning" approaches will not accomplish this goal. Even proposals for "deep learning" or the invention of a "new science of causality"[41] are unlikely to get us there. Philip K. Dick's 1968 novel, *Do Androids Dream of Electric Sheep*, later made into the 1982 Ridley Scott movie *Blade Runner* (with seven different released versions and its 2017 sequel *Blade Runner 2049*) tantalizes the audience with the possibilities.[42] Rogue robots. Empathy tests. The Tyrell Corporation. The lovely Rachael. Robots making

more baby robots. Many AI researchers push the likelihood of first AGI examples into the second half (typically late second half) of this century, if at all. But that doesn't stop many from trying.

Now the engineering of “artificial” humans is getting serious. Billions of dollars serious. New global conflagration serious. Armageddon time. But the failures of experimental psychology – whether in behaviorist or cognitivist (or even psychoanalytic) format – underscore our enduring ignorance of the object of all this attention.[43] While “behavior modification” seems to work in many cases, the principles of the psyche behind all this remain deeply elusive. In some ways, when “if it works” takes over, who needs to understand the principles anyway? Answer: AGI requires that understanding.

Will philosophy save the day? Psychology was once a “wing” of philosophy. Harvard didn't split the two into separate departmental designations until 1933. The first psychology book translated into Japanese and Chinese (neither of which languages then had a word for what we call “psychology”) was Joseph Haven's 1862 *Mental Philosophy*.[44] But that older understanding doesn't appear to be where philosophy (or at least one of today's most publicly aggressive expressions of philosophy) is headed.

Philosophy has gone “post-human.” Or, as the 2015 *The Nonhuman Turn* (a conference volume, edited by Richard Grusin, of the Center for 21st Century Studies) puts it, “This book seeks to name, characterize, and therefore to consolidate a wide variety of recent and current critical, theoretical, and philosophical approaches to the humanities and social science. Each of these approaches, and the nonhuman turn more generally, is engaged in decentering the human in favor of a turn toward concern for the nonhuman, understood variously in terms of animals, affectivity, bodies, organic and geophysical systems, materiality, or technologies.”[45] Decentering the human. In favor of . . . technologies. How long before the hue-and-cry for “robot rights” becomes front-page news?

This is not exactly a fringe movement. A few years back IBM's Watson group (yes, they make robots) sponsored an event featuring post/transhuman proponents including sociologist Steve Fuller, who has published and lectured extensively on these topics. Fuller is noted for his statement that “If you take seriously that evolution has to do with the transition of forms, and that life and death are just natural processes, then one gets to be liberal about abortion and euthanasia. All of these kinds of ideas seem to me to follow very naturally from a Darwinian perspective – a deprivileging of human beings, basically.”[46] In 2013 a group of Russians took over the Lincoln Center for the “Global Future 2045 International Congress.” The event was dubbed “Towards a New Strategy for Human Evolution.” They want to “upload” the psyche into machines.[47] In 2018, the 24th “World Congress of Philosophy” convened in Beijing with “Post humanism” as one of its highlighted through-the-conference tracks, in which leading proponents from around the world participated.[48] Stanford University is busy with its “Institute for Human-Centered Artificial Intelligence,” where the obvious extension of “human rights”

to “nonhumans” is being discussed.[49]

Although most involved are pained to minimize the “negative” consequences, Elon Musk personally wrote a $1M check to finance Max Tegmark's “Future of Life” group at MIT, ostensibly to campaign against weaponized robots.[50] Trying to stop the deployment of Robocop. Signatures have been collected and pledges have been made. Few believe that will really work. Roman Yampolskiy, a computer science professor at the University of Lexington (Kentucky) and signatory of the “Asilomar Principles” believes that AIs must be “boxed” to be trusted.[51] He just might be right.

The alternative to all this “decentering” and “deprivileging” might be to return to the beginning of our effort to understand the human psyche. Aristotle “invented” psychology in the 4th-century BC. His *Peri Psyche* (*De Anima* in Latin and *On the Soul* in English) is little studied today and generally unknown to the typical psychology major.[52] Indeed, repeated and detailed discussions of Aristotle appear to be rare nowadays. Thomas Aquinas famously brought Aristotle back in the 13th-century and his *Commentary on Aristotle's De Anima* (along with many others, including key figures in Islamic philosophy) really has to be featured in that renewed course of study. Today, academic followers of Thomas, particularly among Spanish philosophers, while few-and-far-between, continue to keep these topics alive.[53] Until the “Enlightenment” these were well worn paths both in Continental and Anglophone circles. The time has come to retrieve this largely forgotten wisdom.

We have already entered what is called the Digital Paradigm. As many would remark (and as Wired magazine warned us), “everything has already changed.”

The technological conditions which structured human relations in the 20th century – largely based around electric technologies, like radio and television – no longer apply. Or, as some have remarked (echoing Dorothy's line from *The Wizard of Oz*), “No, Toto, I don't believe we are in Kansas anymore.”[54] Human engineering was a widespread enthusiasm under Electric conditions. That will no longer be so widely practiced, without consideration for the consequences, under digital conditions. Society – human society, that is – has already been restructured and old biases, prejudices, presumptions no longer hold. At the same time, however, another society is growing “parasitically” inside its human “host.” We call that new society the Digital Sphere. Recently Elon Musk presented an update on his Neuralink project.[55] Concluding the hour-plus presentation, billed as an effort at recruitment (today 100 work there, Musk suggested that 10,000 was his goal), the Neuralink team members gave their wish-list of hoped-for accomplishments. Musk was the most expansive, pointing to a “tertiary neurological level,” beyond the current Limbic and Cortical, in which Neuralink would incorporate a higher machine-based level. Perhaps this is what John Markoff meant when he titled his recent book *Machines of Loving Grace: The Quest for Common Ground Between Humans and Machines* (2016).[56] As the lead article in its Sunday Review immediately following Musk's demonstration of brain-implanted pigs, the New

Times published Moises Velasquez-Manoff's article titled “The Brain Implants That Could Change Humanity: Brains talking to computers, and computer to brains. Are our daydreams safe.” The center-fold spanning article's concluding section is labeled “A Human Rights Issue.”[57] What Musk &al wants to invent will no longer be human. It will be engineered to become something quite different. When you hear a tech executive waxing expansively about space travel, rest assured that humans are not likely to be the explorers.[58] Having extravagantly failed to engineer a “better human,” the sentiment today has shifted towards “replacing” them. Replacing us. All of us. With something better. Something no longer “animal.” And, one suspects, also something no longer “rational.” The 20th century loss of our previous understanding of what it means to be human – fueled by the urge to “experiment” on us, requiring the jettison of the earlier Faculty Psychology – has stolen from us our ability to grasp what has been happening already for decades now. Happening to us all. We must retrieve that understanding or face the inevitably dire consequences.

## NOTES

1. In the beginning of what became known as the “futurism” movement in the mid 20th century, Lawrence K. Frank (1890-1968) organized what he hoped would be a comprehensive effort looking forward to the 21st. Operating under the auspices of the AAAS, the results were presented in a special issue of the Academy's journal *Daedelus* in its Summer 1967 issue, then followed by the publication of *Toward the Year 2000: Work in Progress*. Corning Glass paid Herman Kahn's Hudson Institute to generate an underlying economic “forecast,” which was separately published as *The Year 2000: A Framework for Speculation On the Next Thirty-Three Years* and other volumes. Overall, the effort was a high-profile failure. The “framework” missed the Internet (which was already then visible then in the form of the Arpanet). The recruited experts largely refused to follow Frank's attempts to focus their attention and instead wrote about their own preoccupations. Accordingly, nothing on this scale was attempted again, leaving the futurism field to its individual promoters, such as Alvin Toffler &al.

2. Following the publication of *On Thermonuclear War* in 1960, RAND Corp. senior analyst, Herman Kahn (1922-1983), was persuaded to establish his Hudson Institute, on an estate atop a hill in Westchester overlooking the Hudson valley. Some have suggested that this may have influenced Stan Lee (1922-2018), who grew up nearby in Scarsdale, in his creation of the X-Men, a group of mutants based in a similar Westchester mansion. Initially carrying on defense related work, Hudson suffered from declining income as various nuclear arms treaties were negotiated, shifting the need for more “thinking the unthinkable” towards a more commercial orientation, including a focus on Japan. B. Bruce Brigg's *Supergenius: The Megaworlds of Herman Kahn*
(2000) is perhaps the best account of the early Hudson years. Kahn's close friend from RAND in Santa Monica, Andrew Marshall (1921-2019), also came East, first joining Henry Kissinger's National Security Council in 1969 and then founding the Office of Net Assessment (ONA) at the Pentagon in 1973. The Center for the Study of Digital Life (CSDL), publisher of *Dianoetikon*, was spun-out of work done for ONA and was formed in 2015, the year Marshall retired.

3. Lawrence K. Frank was an important foundation executive associated with a series of Rockefeller related groups. His focus on education, always a crucial topic for Rockefeller

research efforts, made him one of those concerned with using education to a “new” sort of human being. Various technologies were thought to help provide this new image. Frank's involvement with the Josiah Macy Foundation involved conferences on both computers and hallucinogens, which have been two of the most prominent approaches to human engineering in the past 50+ years.

4. Fred Polak (1901-1985) was an early Dutch futurist, professor of sociology and adviser to the Dutch government, as well as a Dutch politician and founder of a political party. He received UNESCO and Ford Foundation fellowships and founded Teleac, the Dutch academy for educational television. In 1954, Polak was a part of the first session of the Ford backed Center for the Advanced Study of Human Behavior (see note #6), where he met Kenneth and Elise Boulding (see note #5 and note #9). Elise (1920-2010) was so impressed that she learned Dutch so that she could translate Polak's book, which she did twice, first in its entire 2-volume format and then again as an abridged version. The abridged text followed the layout of the original but omitted an entire chapter which Polak had titled “The Futureless Future.” Polak had understood that the elimination of Christianity as the West's source of its “image of the future” had dire consequences, but which Boulding did not want acknowledge. Instead, she concluded with her version of a “new age,” then being synthesized.

5. Boulding (1910-1993) was an economist, social science “king-maker” and peace activist. He and his wife Elise described themselves as “Quaker mystics.” He was President of the American Economic Association, the Society for General Systems Research, the AAAS and the Peace Research Society and was repeatedly nominated for both the Nobel prize in Peace and Economics.

6. The Center was established at Stanford University in 1954 by the Ford Foundation. It has now been absorbed by Stanford and operates through a consortium of institutions. Nomination for Fellows was initially closed to those involved and it served as an in-group award for particularly promising scholars, often taking the year at CASBS to work on book projects. Thomas Kuhn (1922-1996) worked on his *The Structure of Scientific Revolutions*, from which we get the popular notion of “paradigm shifts,” when he was there in 1958. More recently, Fred Turner wrote his *The Democratic Surround: Multimedia and American Liberalism from World War II to the Psychedelic Sixties* when on sabbatical there.

7. Kenneth Boulding highly cited 1955 book, in which he promotes the idea that humanity needs a new “image.” He proposed that a new field of practice be launched which he called “Eiconics” to deploy and track the effectiveness of images across the population. The intent was to engineer the missing “image of the future” to provide society with a “final cause.” This idea finally caught on with the invention of the approach called “Mimetics” (linked to early human mental development, see note #6)

8. Picking up where Boulding left off, Richard Dawkins supplied the name for this process of promoting “self-replicating” ideas by coining the term “meme” in this 1976 book. Dawkins is an evolutionary biologist , long associated with Oxford, where he was their “Professor for Public Understanding” from 1995-2008. More recently he has become famous for his wide-ranging defense of atheism. A detailed account of the use of memes, written by Marxist historian Adam Westoby (1944-1994) has been published with the title “The Ecology of Intentions: How to Make Memes and Influence People: Culturology” on cognitive psychologist Daniel Dennett's website.

9. Joseph Cambell et al, *Changing Images of Man*, (Oxford: Pergamon Press, 1982), xxi.

Under the direction of Willis Harman (1918-1997) and his colleagues at the Stanford Research Institute, the U.S. Dept. of Education sponsored a series of projects and publications, starting in the late 1960s, aimed at engineering the future of society. The most ambitious of these efforts was circulated privately in the 1970s and finally published in 1982 with the "Changing Images" title, as part of the Pergamon "Systems Science and World Order Library." It involved an international cast of notables, including an advisory panel that included Margaret Mead, Rene Dubos and Sir Geoffrey Vickers. The listed "reviewers" included Margaret Mead, Carl Rogers, Ervin Laszlo, James Fadiman, Stanley Krippner and Elise Boulding (who wrote an appendix to the report), along with others. What is often called the "New Age" movement grew out of these efforts, as reflected in Marilyn Ferguson's (1938-2008) best-seller *The Aquarian Conspiracy: Personal and Social Transformation in the 1980s* (1980), later translated into 16 foreign languages. She was described by fellow New-Ager, Deepak Chopra, as a "one-woman movement for hope."

10. Harman had an expansive career, joining the Stanford faculty as an electrical engineering professor in 1952 -- where he is described as "teaching transistors to Silicon Valley" -- and finishing as President of the Institute of Noetic Sciences (IONS) in Sausalito for the last 20 years of his life. IONS was famous for its "parapsychological" research, including on ESP and "remote viewing" (as dramatized in the movie *Men Who Stare at Goats*) and the Institute has been described as "devoted to exploring psychic phenomena and the role of consciousness in the cosmos." Harman was closely associated with Alfred Hubbard (1901-1982), an inventor and sailor who dubbed himself "Captain, known as the "Johnny Appleseed of LSD," who believed that the drug was a "secret sacrament" for the Catholic Church. Along with Ampex executive, Myron Stolaroff (1920-2013), he administering LSD to many Silicon Valley engineers, including the author of "Human Augmentation," Douglas Englebart (1925-2013), at his Menlo Park clinic, the International Foundation for Advanced Study.

11. Now called "The Science of Consciousness," this biannual conference has been held since 1994, organized by the University of Arizona, initially in Tucson and later expanding to international locations. Willis Harman played an important role in securing the early funding for the event as well as helping to launch its companion publication, *Journal of Consciousness Studies*.

12. Building on details released by the Senate (see note 13), "underground impresario" Walter Bowart seized the opportunity to publish a wide-ranging and "conspiracy" filled account of government-backed efforts to use drugs for social and personal "mind control." This theme was then picked up in a series of titles, including *Dope, Inc., The Search for the Manchurian Candidate, Acid Dreams and Storming Heaven* &c. The notion that the CIA used drugs to disable the anti-war movement gained broad acceptance as a result. The important role of the Soviet KGB in distributing these drugs as "psycho-chemical" warfare in the Cold War to "destabilize the West" (much as today's LSD is being supplied by China) has yet to be fully explored.

13. The CIA's use of LSD and other drugs, starting in the 1950s as part of research on interrogations, expanded into multiple projects in the 1960s, the most famous of which was code-named MK-ULTRA. These hearings are considered by some historians to be an expression of conflicts within the Agency, raising doubts about the veracity of the "accidentally" discovered MK-ULTRA files, portraying some in the CIA as dangerous and out-of-control. One of the major results of the Church Committee was the establishment of

Congressional oversight of the U.S. Intelligence Community, as has recently been in the news.

14. Starting in 1937 and continuing into the early 1940s, the Rockefeller Foundation funded an expansive effort to understand the effects of radio on society, perhaps the largest study of its kind ever conducted. This was later updated by Marshall McLuhan with his research on the effects of television (see note #18). The rise of Hitler, using radio to build support, was a major motivation for the study. The Project began at Princeton, managed by the "statistical" sociologist Paul Lazarsfeld (1901-1976), later shifting its focus to Columbia University, where Lazarsfeld had founded the Bureau of Applied Social Science. It was overseen by the Princeton psychologist Hadley Cantril (1906-1969), who analyzed the 1938 Orson Welles dramatic reading broadcast of H.G. Wells's "War of the Worlds," during which many listeners believed that Earth was actually being invaded by Martians. One of the more important participants was Frank Stanton (1908-2006), who started as director of research and later became the president of CBS. Theodor Adorno (1903-1969), famous Frankfurt School philosopher/musicologist, was hired to explore the effects of popular music but quit over methodological differences.

15. Following WWII, considerable effort was made to try to understand how modern Germany had become "fascist." T. Adorno teamed with three others to produce the volume which "invented a set of criteria by which to define personality traits and their intensity in any given person on what it called the 'F scale' (F for fascist)". This approach, despite many criticisms for bias and methodology, became influential in the burgeoning field of Social Psychology. It was later cited by Norwegian mass-murder Anders Brevik, defending his actions, as a primary document used to organize the "indoctrination" of the Norwegian population.

16. Christopher Simpson's account of the transition of WWII psychological warriors into the field of "Communications Research" is detailed and persuasive. Psychology had been deployed in a limited way in WW I but it became a widespread offensive tactic 20 years later. Replacing many aspects of "kinetic" conflict, psychological warfare became the underpinning of the "Cold War" (i.e. "cold" because kinetic weapons deployment had become "limited"). One of those new departments, catalyzed personally by Margaret Mead, was at Fordham University -- where Marshall McLuhan would take a famous sabbatical (also where the study of his media work shifted after the death of Neal Postman, see note #22), as well as where the Rockefeller Special Studies Project turned for a "moral justification" for limited nuclear war.

17. In a psychological war, particularly under "television conditions," the locus of conflict shifts from physical territory to its mental equivalent. During the 1950s, the CIA waged an multi-front battle with the Soviet Union for "propaganda" reasons. Supporting an array of journals and artists, many of which were "left-wing," the Agency apparently sought to counter Soviet assertions about "decadent art" by promoting movements like Abstract Expressionism. Saunders' book paints a top-down control picture, since the goal was to tarnish the CIA-as-enemy, but that seems to have been an ideological stretch. In fact, when money is being handed out in this fashion, many will take the funding and then just continue with their own plans. Hugh Wilford countered Saunders' arguments in his *The Mighty Wurlitzer: How the CIA Played America* (2008). Among the projects funded by the CIA but then rejected by the participants for having any influence were the LSD/Psilocybin experiments conducted by Timothy Leary (1920- 1996) &al at Harvard, tracing back to MK-ULTRA (see notes 12 and 13).

18. In 1953, the Ford Foundation's "Program Area Five: Individual Behavior and Human Relations" (as named in the 1949 "Gaither Report" which structured the Foundation, working in

coordination with various Rockefeller foundations) granted $43,000 for this study to anthropologist Edmund “Ted” Carpenter (1922-2011) and his colleague, an English Professor, Marshall McLuhan (1911-1980). This funding was intended to be the television-era follow-up to the earlier Radio Research Project (see note #14) and it launched McLuhan's career as a “media guru.” Despite the fact that Ford specifically declined to support the launching of a journal with these funds, McLuhan and Carpenter went ahead and started *Explorations* journal anyway. *Explorations*, which has recently been reprinted, contained articles by the editing duo (each got their own issue at the end of the run), as well as many of those invited to speak at the seminars they organized at the Univ. of Toronto.

19. This famous phrase is the title of the first chapter of Marshall McLuhan's *Understanding Media: The Extensions of Man* (1964). He had been using the phrase since the late-50s and it became, often with serious misunderstandings, as closely associated with McLuhan, along with “Global Village” &c. McLuhan was a Catholic neo-Thomist, spending much of his academic career at St. Michael's College at the Univ. of Toronto, in close proximity to the Pontifical Institute for Medieval Studies. What he meant by “medium” was later modified to “environment” and, in both cases, he meant to highlight the importance of Aristotle's “formal cause” in shaping human behaviors and attitudes. His son and close collaborator, Eric McLuhan (1942-2018), attempted to illuminate this problem with comprehension in a 2005 essay “On Formal Cause,” which was then re-printed in the 2011 collection, *Media and Formal Cause*, along with other essays. Beginning in the books' Introduction, the effort was already underway to sabotage Eric's effort, falsely equating formal cause with “complexity science” (which is, rather, a modern version of “material cause”). The entire topic of causality has become fraught in the 20th-century, as “efficient cause” (which is what most mean by cause-and-effect) was replaced by statistical correlations. Judea Pearl, a well-known artificial intelligence researcher, has countered this deficiency with his *Book of Why: The New Science of Cause and Effect* (2018), correctly asserting that

breakthroughs in AI are already hampered by our general ignorance of the topic. As it turns out, constructing “artificial humans” requires understanding how humans comprehend causality.

20. The current furor over “election interference” and “surveillance capitalism” rests on the notion that our neuro-anatomical mid-brain can be “persuaded” by particular stimuli. While these techniques have long been employed by television advertisers (in fact, they are the ones who invented “one-to-one marketing”), the negative reaction to the election of Donald Trump in 2016 launched a panoply of commentary about how “social media” is manipulating our thoughts and actions. This is generally not well informed, however strongly the opinions might be held, since the analogs to research on addition, “mirror neurons” &c have few clear correlates. Rather, it seems, many have been driven to grasping at straws to justify their political opinions. The actual psychological processes involved remain obscure to most, particularly the effects of radical “paradigm shifts” in the underlying psycho-technological environments. Eric and Marshall McLuhan's 1988 *Laws of Media: The New Science* might be helpful for those confused about how new technologies generate shifts in popular behaviors and attitudes.

21. Alfred Korzyski (1879-1950) was a Polish nobleman and Russian intelligence officer who relocated to New York and founded an approach to mass-psychology that became known as “General Semantics” (GS). His approach was initially called “human engineering,” but since that phrase has negative connotations, the more neutral “semantics” was substituted. His suggestion was that language was the problem, aligning with many other efforts then

underway to revise our language use in the hopes of engineering a “better” human. Among these were Esperanto and Basic English (see note #24), as promoted by C.K. Ogden (1889-1957) and I.A. Richards (1893-1979), co
authors of the widely-read 1923 *Meaning of Meaning: A Study of the Influence of Language upon Thought and of the Science of Symbolism*. For many, WW I reflected a sort of “collective insanity” and psychology was thought to be the solution, particularly focusing on the distinguishing characteristic of human psychology -- our use of language. Semiotics grew out of this concern, along with the “linguistic turn” in philosophy and the engineering potential of linguistics in general (see note #27).

22. Postman (1931-2003) was a follower of Korzybski and, after an internal split within “General Semantics,” edited the movement's West-coast publication *ETC*. Postman parlayed this role into a prominent position at NYU, eventually directing his own program at the University, initially staffed with others from GS. Among his most widely known works is the 1985 *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, building on the work on figure/ground from Gestalt psychology as promoted by Marshall McLuhan. He termed this graduate program “Media Ecology,” a term initially suggested to him by Eric McLuhan. This effort is now institutionalized in the Media Ecology Association (MEA), which shares an over-lapping board with the GS movement. For many years, the MEA group was one of the few places where scholars of the McLuhan's work could present papers, although this has changed with multiple independent efforts now underway. In the speech he delivered on the night before his 2018 death (in Bogata, Columbia), Eric called for a “new media ecology,” an effort now being picked up by his grandson, Andrew McLuhan, and others.

23. In 1893, the first of many “World's Parliament of Religions” (now called Parliament of the World's Religions) was held in Chicago, in conjunction with the “World Columbia Exposition” (an early world's fair). Notably absent were representatives of any major Christian or Jewish denominations. Buddhism, Hinduism, Jainism, Theism and Theosophy were all given prominent placement. This was the first time Baha'i was presented to an American audience and it spread, along with the parallel development of Esperanto, as an explicitly “globalist” faith.

24. Like Esperanto, Basic English was a “controlled language” based on a limited subset of English based on C.K Ogden's 1930 *Basic English: A General Introduction with Rules and Grammar*. H.G. Wells (1866-1946) picked it up as the inter-language used in his 1933 *The Shape of Things to Come*, which he published in response to his “godson,” Aldous Huxley's (1894-1963) 1932 *Brave New World: A Novel* (constructed as a satire on his “godfather's” work, whereas his brother, Julian (1887-1975), worked closely with Wells, carrying forward his plans for an “Open Conspiracy” as the founding head of UNESCO).

25. This was an important essay published by Marshall McLuhan and Edmund Carpenter in the Chicago Review in Spring 1956. It was, in many ways, a summary of their work on the Ford Foundation's 1953 grant to them (see note #18). Appearing at the same time as a collection of Benjamin Whorf's essays (see note #26), it presented the novel idea that technologies are themselves languages and vice-versa.

26. While Benjamin Whorf (1897-1941) and Edward Sapir (1884-1939, who had been Whorf's professor at Yale) never authored a paper together and never stated their ideas as a hypothesis, the fascination with the potential use of language to engineer humans led to a belief in “linguistic determinism” (now largely discredited). Whorf's collected essays were published in 1956 as *Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf*.

Among those selected were Whorf's presentations to meetings of Theosophical Society.

27. *Wikipedia, The Free Encyclopedia,* s.v. “Universal grammar,” (accessed September 1, 2020), https://en.wikipedia.org/wiki/Universal_grammar. If, in fact, there was a “universal grammar” that applies to all human language, then it could potentially be used to program humans, or such was the view of some in the 1950s. In parallel with the notion that humans are “computer-like” (see note #28), this interest led MIT to hire him on a fast-track to tenure, after he had spent years as a Harvard Fellow. As it turns out, there is no such universal grammar and, even more importantly, humans are not “computer-like.”

28. Over the course of the development of “experimental” psychology, various approaches have been attempted, including an early focus on “behavioral” psychology. Starting in the late-1960s, “cognitive” psychology took over the “scientific study of mental processes” and remains largely dominant to this day. This shift was tied to the development of the field of Cybernetics, which began (with that name) following the publication of Norbert Wiener's (1984-1964) 1948 *Cybernetics: Or Control and Communication in the Animal and the Machine*.

29. In parallel with the development of behaviorism &c, the field of psychoanalysis became widely studied and practiced. A seminal event in this history was the joint appearance of Sigmund Freud (1856-1939) and Carl Jung at Clark University in 1909 (in Worcester, MA, established as a “research only” institution, rivaling Harvard &al). Freud was concerned that most of his adherents were Jewish and was anxious to bring the Swiss Christian Jung into his movement. The two did not hit-it-off and Jung, who turned out to be a “gnostic,” soon split with Freud and built his own following, often called “depth psychology.”

30. Something of a “cult classic,” perhaps in part because little is known about the author, the book details the drastic changes made in higher education in the U.S. beginning in the late 19th-century. PhDs and “disciplines” – forcing credentialing and undermining previous inter-disciplinary research – were among the noted impacts.

31. Kubrick, the impresario behind the movie, has been accused of everything from faking the moon landing to belonging to various cults. His final film, Eyes Wide Shut, which he did not survive to debut in Venice, has been described as the “ultimate conspiracy movie.” While based (loosely) on a novel set in Vienna, the film instead points to Venice, as reflected in the masks worn in the infamous “orgy” scene. This theme picks up on some “speculative” history which appeared in a fringe publication
called Fidelio, which just happens to be the password to the libidinous gathering. 32. There are many translations of this work, into many languages – including fresh ones into Chinese and Swedish. The Latin translation catapulted what was then titled De Amina onto the mid-13th century “best-seller” list at the University of Paris. This, of course, was made quite difficult by the fact that every copy had to be handwritten. Of the various English translations, the recent volume by University of St. John's Joe Sachs is highly recommended. Sachs, who has also translated much of Aristotle's “natural science” works, goes out of his way to explain the terminology involved, some of which was “coined” by Aristotle. Entelechy, for instance, which is often left without any translating, is rendered by Sachs as
“being-at-work-while-staying-itself,” reflecting both the dynamism and “essential” character involved. Sachs also makes clear that our “reduced” use of terms like “mind” and “consciousness,” explode into 20+ terms used by Aristotle – one of which has been used to name this journal.

33. Michel Ferrari, Introduction, *History of the Human Sciences*, 23, no. 3 (2010): 1, https://doi.org/10.1177/0952695110363344.

Dr. Ferrari is a Professor at the University of Delaware, where he focuses on “Human Development and Family Studies.” He is a licensed psychologist and holds consulting positions with the State of Delaware &c and has various clinical appointments. 34. Gregory Bateson, “Comment on ‘The Study of Culture and the Purposive Cultivation of Democratic Values,’” in Science, Philosophy and Religion, eds. Lyman Bryson and Louis Finkelstein, 81–97. (New York: Conference on Science, Philosophy and Religion in Their Relation to The Democratic Way of Life, 1942), 92, quoted in Fred Turner, *The Democratic Surround: Multimedia and American liberalism from World War II to the psychedelic sixties*, (University of Chicago Press, 2013), 67. Bateson has a large and devoted following, in part for his own work, including with dolphins and LSD, as well as the widely known efforts of his daughters, Mary Catherine and her half-sister Nora. In 1967, at the “Dialectics of Liberation” conference in London, he delivered a paper titled “Conscious Purpose vs. Nature,” which then led to a two-year conference with that title in Austria. Some have suggested that this event had a key role in the launching of Earth Day in 1970. One of Bateson's enduring influences was on Stewart Brand, who had been publishing his Whole Earth Catalog since 1968 and who considered Bateson to be among his mentors. Bateson was also involved in the Macy Conferences on Cybernetics, with Norbert Wiener &al, about which Brand interviewed Bateson and Margaret Mead.

35. Adam Curtis is a British documentary filmmaker with a long career at the BBC. He describes himself as “fundamentally a historian” and his favorite theme as “power and how it works in society.” His last released works were titled *Hypernormalization* (BBC iPlayer, 2016) and *Living in an Unreal World* (Facebook, 2016) and he is reported to now be producing a “9-part series” working-titled *What is it That is Coming*? 36. *Wikipedia, The Free Encyclopedia,* s.v. “Edward Bernays,” (accessed September 1, 2020), https://en.wikipedia.org/wiki/Edward_Bernays.

Bernays, an Austrian-American, was dubbed “The Father of Spin” in a recent biography by Larry Tye. Bernays’ *Crystallizing Public Opinion* (1923) and *Propaganda* (1928) were classics in the field. Famously, he promoted female smoking with a campaign calling cigarettes “Torches of Freedom,” while he outlined how skilled
practitioners could use crowd psychology and psychoanalysis to control “the masses.” 37. This was a school of psychology which developed in Germany and Austria in the early 20th century. Among its notable proponents were Max Wertheimer, Wolfgang Kohler and Kurt Koffka. The German term “gestalt” can be interpreted as “pattern” or “configuration” – pointing to how we perceive “wholes” rather than discrete “parts.” Gestaltists studied many aspects of perception, developing many principles in the process. Marshall McLuhan picked up on their distinction between “figure” and “ground” – with the former often consisting of ‘bright shiny distractions,’ while the later reflected realities we deliberately avoid – aspects of which were later termed “Amusing Ourselves to Death” by Neil Postman.

38. Wundt was a German physiologist, often referred to as the founder of experimental psychology and credited as “the first person to call himself a psychologist” (reflecting the separation of this field from its earlier association with philosophy). Approaching the topic as a physiologist, his Leipzig laboratory attracted many graduate students for whom his use of varied instruments, including tachistoscopes, chronoscopes and sensory mapping devices represented a completely new approach. Many of his students went on to head new university departments of Psychology, as well as becoming stalwarts in other new disciplines of social science.

39. See Jochen Fahrenberg, The influence of Gottfried Wilhelm Leibniz on the Psychology,

Philosophy, and Ethics of Wilhelm Wundt**,** *PsyDok Dokumentenserver für die Psychologie*, July 20, 2016, https://doi.org/10.6094/UNIFR/12694. Leibniz was a very important figure, perhaps known best in his lifetime as a bold diplomat more than as a philosopher -- largely because much of his work was not published at that time but rather contained in personal correspondence (a good deal of which has not yet been translated into English). He had established himself as an organizational "rival" to the Royal Society of London, where he was a member (as he was also in Paris), by attempting to set up other such institutions in Berlin and St. Petersburg. This, combined with his apparent efforts to "reunite" Christianity, and his disputes with Newton, led to him being largely sidelined after his death. Notably, he was the model for the figure of Dr. Pangloss in Voltaire's *Candide*, from which we get the aphorism "the best of all possible worlds."

40. The quest for what Fr. Philip Larrey calls "Artificial Humanity" is a strong urge for many, no doubt with multiple motivations. Large sums are now being spent – often by those with "arms race" and "national security" on their resumes – to accomplish this goal. To be sure, much about this effort is highly speculative (as well as secretive) and dead ends are a common experience. It seems likely that current models which liken humans to computers will never solve these problems. As a result, new approaches, perhaps based on a renewed understanding of what it means to be human will be needed.

41. Judea Pearl, a well-known artificial intelligence researcher, has suggested in his recent *Book of Why* (2018) as well as his previous *Causality: Models, Reasoning and Inference* (2009) that these efforts have hit a wall due to our poor understanding of causality. Alas, what he is proposing remains a matter of "statistical inference," without fully exploring the richness of causality as described by Aristotle. Causality in all four of its Aristotelian aspects is rarely understood by modern scientists, likely also inhibiting their ability to develop successful approaches to these problems.

42. Ridley Scott's attempt to turn Philip K. Dick's novel into a cinematic extravaganza resulted in one of the most enduring science fiction movies on the theme of artificial humans. Initially a poor box-office performer, often blamed on studio executives robbing the director of his "artistic control," it was later described by the National Film Board as being "culturally, historically, or aesthetically significant." It introduced the Voight-Kampff machine as a fictional interrogation tool (adding an "h" to the spelling in the novel), attempting to measure involuntary responses to questions designed to induce empathy. The book suggested 6 or 7 would be enough, while the movie ups this to 20 to 30, with over 100 needed to "detect" that the "replicant" named Rachael wasn't actually human.

43. To date, approaches based on Faculty Psychology have received little-to-no attention by experimental researchers. A modern approach to a presumed "modularity" in mental functions has been proposed, including some who have suggested that there may be thousands of them, makes no reference to the earlier understanding and appears to have no cohering principles. The psyche (or soul) is completely left out of the picture, as might be imagined. As a result, these failures are likely to continue.

44. Rev. Joseph Haven's *Mental Philosophy: Including the Intellect, Sensibilities, and Will* was among the last of the pre-experimental textbooks on this topic, going through multiple editions. He was a professor of Intellectual and Moral Philosophy at Amherst College and is credited with having had a "instrumental" impact on the development of the social critic Thorstein

Veblen.

45. Richard Gruson, introduction to *The Nonhuman Turn*, ed. Richard Gruson, (Minneapolis: University of Minnesota Press, 2015), vii.

In May 2012, the University of Wisconsin-Milwaukee's Center for 21st Century Studies hosted a 3-day conference on “The Nonhuman Turn,” describing it as addressing a trend “that has been emerging in the arts, humanities, and social sciences over the past few decades.” It traced the origins to a host of influences, including “actor-network theory” (ANT), “projects for animal rights,” cognitive science, the “new realism” and “new materialism,” “panpsychism,” as well as “systems theory in its social, technical, and ecological manifestations.” The academic interest in granting status to “nonhumans” is widespread. Bruno Latour, who originated ANT (which became a mainstay of Science, Technology and Society practices), famously addressed the American Anthropology Association by asking the standing-room only participants at his lecture, “What is the intention of this glass of water?”

46. *Expelled: no intelligence allowed,* directed by Nathan Frankowski, (2008; US, Vivendi Entertainment, Rocky Mountain Pictures, 2008), DVD.

Dr. Fuller is a “social epistemologist” currently occupying the Auguste Comte Chair at the University of Warwick. He is also a Fellow of the UK Academy of Social Sciences and has an honorary professorship at Dalian University of Technology in China. In *Humanity 2.0*, he writes that “transhumanism” offers humanity the prospect “to re-engineer the human body to enable us to live longer so as to work and play harder.” He has been engaged for many years in controversies regarding “intelligent design.”

47. Among those most interested in developing a “new man” are various Russian researchers. Perhaps this stems in part from the “Soviet Man” effort, which appears to have involved the selection and training of some children, and some involved specifically link their plans to the late-19th century movement known as “Cosmism.” Attempts to re-engineer humanity took many forms in the early Soviet Union, including the ultimately fatal experiments conducted on himself by V. Lenin's “rival” Sergei Bogdanov, as recently described in McKensie Wark's 2016 *Molecular Red: Theory for the Anthropocene*.

48. Dating to 1900, now held every five years, the Congress is organized by the International Federation of Philosophical Societies. It was last held in 2018 in Beijing and will move to Melbourne in 2023. The 24th Congress in 2018 was themed “Learning to be Human.”

49. Stanford's HAI has become an important hub for everything from geo-politics (engaging Condoleezza Rice, who heads Stanford's Hoover Institution) to human rights and economic research. It has significant Silicon Valley support, including participation by Eric Schmidt and Reid Hoffman &c. The recent launch of Eric Brynjolfsson's Digital Economy Lab there amplifies his earlier work at MIT, where he co-authored *Race Against the Machine* (2011) and *The Second Machine Age* (2014).

50. The Institute was established in 2015 with a $10M grant from Elon Musk and is headed by MIT Professor Max “Mad Max” Tegmark. It describes itself as “developing optimistic visions of the future, including positive ways for humanity to steer its own course considering new technologies and challenges.” It works on “existential risks,” including nuclear war, biotechnology, artificial intelligence and climate change.

51. Dr. Yampolskiy is an Associate Professor at the University of Louisville, KY, where he heads their “Cybersecurity Laboratory.” He is a widely recognized expert on “AI Safety,” taking

one of the most restrictive approaches called “boxing” (since the AIs are severely limited in how they can act), warning that we have already crossed the threshold where we no longer can be totally sure what these machines are doing.

52. As depicted in Raphael's *School of Athens* painting at the Vatican, Aristotle is the “realist” to Plato's “idealist.” Whereas his teacher's Dialogues often revolve around constructing a “better” Athens (following the civil murder of his own teacher Socrates), Aristotle wasn't Athenian and expressed a wider range of interests. His work on “natural science” has been foundational to the development of science in the West.

53. Aristotle's *Peri Psyche* (see note 32) is the founding effort in what would become the science of Psychology. It was recognized as such by many, resulting in a large number of commentaries (some of which are more properly full-blown expositions), including those by Avicenna, Averroes, Maimonides and, ultimately, Thomas Aquinas. Detailed understanding of both the original work and these commentaries is now needed in order to push Psychology forward.

54. While many have commented on the extensive changes made to Frank Baum's original novel, few seem to have noted the role played by radio technology in the 1939 film. The Wizard, of course, ran Emerald City's radio station. “Pay no attention to the man behind the curtain” could just as well describe how we typically think of those “behind” what broadcast technologies -- from radio to television to Facebook &c --
send our way. Beyond the content and its production, the medium itself has powerful effects. The Rockefeller Radio Research Project (see note 14) was a massive effort attempting to understand those impacts. Marshall McLuhan's “media guru” career began as a television update to that research.

55. Despite (or perhaps because of) the extravagant claims being made for these technologies, many who actually work with the brain suggest that this approach cannot possibly deliver. To begin with, beyond some elementary mapping, little is known about the “wiring” of the brain -- likely because it doesn't appear to be wiring at all. “Neural networks” is a term of the electronic arts, not the neurophysiological ones. While electric “pulses” could be said to travel the axons, the actual synaptic junction is overwhelmingly a chemical, not electric, phenomenon. Is our brain a collection of “connections” -- as falsely claimed by many cognitivists -- or, rather, an elaborate chemical soup? Psychoactive drugs manipulate these chemical neuro-transmitters, not the interfaces that Neuralink is looking for. This project seems to be headed for the dustbin of “models behaving badly.”

56. John Markoff is a retired New York Times technology reporter, currently working on the authorized biography of “Whole Earth” organizer Stewart Brand, while a Fellow at the CASBS (see note 6) and working with Stanford's Institute for Human-Centered Artificial Intelligence (see note 49). He previously wrote *What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry*, which set to link Silicon Valley's success to its LSD-linked past, centering on Stewart Brand, who had previously been the focus of Tom Wolfe's (1930-2018) 1968 *The Electric Kool-Aid Acid Test*. Markoff's “Dormouse” book was a rewrite of an earlier effort to write about the influence of Willis Harman (see note 10) on the cultural politics surrounding Stanford.

57. The topic of human rights is likely to become a controversial one for at least two reasons: 1) Do these “rights” extend to robots? and 2) Do technologies inherently take away our

capability to be fully human? It was recently reported in Reuters that a group of neuroscientists at Columbia University have proposed an extension to the "Universal Declaration" to include five "neurorights," including: rights to identity, free will, mental privacy, equal access to "brain augmentation advances" and protection from "algorithmic bias." While unlikely to change the Declaration (which was written in the transition from radio to television environments), the so-called NeuroRights Initiative might draw attention to dangers we are dealing with.

58. For some, not only are humans the problem but the Earth has also been irredeemably corrupted by them. This "corruption," reminding us of the "Puritan" intentions of those, like the Puritan "Roundheads" in the 17th-century English Civil War, points to the need for an eschatological resolution. The impulse to "get back to the Garden," as Joni Mitchell sang about in her song Woodstock, is likely to motivate some who have devoted their lives to extraterrestrial adventure. Needless to say, space is no place for humans. Not only do we need gravity and oxygen but the inability to grow even hardy crops on Martian soil should highlight the fact that "new humans" will be required to make that journey.

## REFERENCES


Adorno, Theodor, Else Frenkel-Brunswik, Daniel J. Levinson, and R. N. Sanford. *The Authoritarian Personality*. Brooklyn: Verso Books, 2019.

Bell, Daniel and Stephen R. Graubard, eds. *Toward the Year 2000: Work in Progress*. Cambridge: The MIT Press, 1997.

Aquinas, Thomas. *Commentary on Aristotle's De Anima.* Translated by Kenelm Foster and Sylvester Humphries. Aeterna Press, 2015.

Aristotle. *Peri psyches. Aristotle's psychology, in Greek and English, with introduction and notes by Edwin Wallace*. Cambridge: At the University Press, 1882.

Asher-Schapiro, Avi. "'This is not science fiction,' say scientists pushing for 'neuro-rights'." *Reuters*, December 3, 2020. https://www.reuters.com/article/us global-tech-rights/this-is-not-science-fiction-say-scientists-pushing-for-neuro rights-idUSKBN28D3HK

Bateson, Gregory. "Comment on 'The Study of Culture and the Purposive Cultivation of Democratic Values.'" In Science, Philosophy and Religion, Second Symposium, edited by Lyman Bryson and Louis Finkelstein, 81–97. New York: Conference on Science, Philosophy and Religion in Their Relation to The Democratic Way of Life, 1942.

Baum, L. Frank. *The Wonderful Wizard of Oz*. Chicago: G.M. Hill Co.,1900.

Boulding, Kenneth E. *The image: Knowledge in life and society*. University of Michigan Press, 1956.

Bowart, Walter. *Operation Mind Control: The CIA's Plot Against America.* USA: Dell Publishing,1978.

Bruce-Briggs, B. *Supergenius: The Mega-Worlds of Herman Kahn*. Lulu.com, 2005.

Burgess, Anthony. *A Clockwork Orange*. UK: William Heinemann, 1962.

Cambell, Joseph, Duane Elgin, Willis Harman, Arthur Hastings, O.W. Markley, Floyd Matson, Brendan O'Regan and Leslie Schneider. *Changing Images of Man*. Oxford: Pergamon Press, 1982.

Carpenter, Edward and Marshall McLuhan, eds. *Explorations in Communication: An Anthology*. USA: The Beacon Press, 1960.

Curtis, Adam. *The Century of the Self*. Episode 1. "Happiness Machines." Directed by Adam Curtis. Aired March 17, 2002, BBC.

Dawkins, Richard. *The Selfish Gene*. USA: Oxford University Press, 1989. Dick, Philip K. *Do Androids Dream of Electric Sheep?* USA: Doubleday, 1968.

Fahrenberg, Jochen. The influence of Gottfried Wilhelm Leibniz on the Psychology, Philosophy, and Ethics of Wilhelm Wundt**.** *PsyDok Dokumentenserver für die Psychologie*, July 20, 2016. https://doi.org/10.6094/UNIFR/12694.

Ferrari, Michel. Introduction. *History of the Human Sciences*, 23, no. 3 (2010): 1- 14. https://doi.org/10.1177/0952695110363344.

Ferguson, Marilyn. *The Aquarian Conspiracy: Personal and Social Transformation in the 1980s*. Los Angeles: J.P. Tarcher, 1980.

Fogg, B.J. *Persuasive technology: Using computers to change what we think and do*. San Francisco: Morgan Kaufmann, 2003.

Frank, Lawrence K. *Nature and Human Nature: Man's New Image of Himself*. New Brunswick: Rutgers University Press, 1951.

Frankowski, Nathan, dir. *Expelled: no intelligence allowed.* 2008; US, Vivendi Entertainment, Rocky Mountain Pictures, 2008. DVD.

Fuller, Steve. *Humanity 2.0: What it Means to be Human Past, Present and Future*. New York: Palgrave Macmillan, 2011

Gruson, Richard. Introduction to *The Nonhuman Turn*, vii-xxix. Edited by Richard Gruson. Minneapolis: University of Minnesota Press, 2015

Harman, Willis. *Global mind change: The promise of the 21st century*. San Francisco: Berrett-Koehler Publishers, 1998.

Haven, Joseph. *Mental Philosophy: Including the Intellect, Sensibilities, and Will*. New York: Sheldon and Company, 1876.

Huxley, Aldous. *Brave New World.* London: Chatto & Windus, 1932.
Kahn, Herman. *On Thermonuclear War*. Princeton University Press, 1960.

Kahn, Herman, and Anthony J. Wiener. *The Year 2000: A Framework for Speculation on the Next Thirty-three Years*. New York: MacMillan Publishing Company, 1967.

Kalimtgis, Konstandinos, David Goldman, and Jeffrey Steinberg. *Dope, Inc: Britain's Opium War against the U.S*. New York: New Benjamin Franklin House, 1978.

Korzybski, Alfred. *Manhood of Humanity: The Science and Art of Human Engineering*. New York: E.P. Dutton & Co.,1921.

Kuhn, T. S. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, 1962.

Larrey, Philip. *Artificial Humanity: An Essay on the Philosophy of Artificial Intelligence*. Rome: IF Press srl, 2019.

Lee, Martin A., and Bruce Shlain. *Acid Dreams: The Complete Social History of LSD: the CIA, the Sixties, and Beyond*. New York: Grove Weidenfeld, 1992.

Lionni, Paolo. *The Leipzig Connection: The Systematic Destruction of American Education*. Portland: Heron Books, 1980.

Markoff, John. *What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry*. New York: Penguin Books, 2006.

Markoff, John. *Machines of Loving Grace: The Quest for Common Ground Between Humans and Robots*. New York: HarperCollins, 2015.

Marks, J. D. *The search for the "Manchurian candidate": The CIA and mind control*. New York: Times Books, 1979.

McLuhan, Marshall. *Understanding Media: The Extensions of Man*. New York: The Penguin Group, 1964.

McLuhan, Marshall, and Eric McLuhan. *Laws of Media: The New Science*. Toronto: University of Toronto Press, 1988.

McLuhan, Marshall, and Eric McLuhan. *Media and formal cause*. Houston: Neopoiesis Press, LLC, 2011.

Postman, Neil. *Amusing ourselves to death: Public discourse in the age of show business*. New York: Penguin Books, 1986.

Ogden, C. K. *Basic English: A General Introduction with Rules and Grammar*. London: K. Paul, Trench, Trubner & Co., 1932.

Ogden, C. K., and I. A. Richards. *The Meaning of Meaning: A Study of the Influence of Language Upon Thought and of the Science of Symbolism*. New York: Harcourt, Brace & Co., 1923.

Pearl, Judea, and Dana Mackenzie. *The Book of Why: The New Science of Cause and Effect*. New York: Basic Books, 2018.

Pearl, Judea. *Causality: Models, Reasoning, and Inference*. New York: Cambridge University Press, 2010.

Polak, F. L. *The Image of the Future: Enlightening the Past, Orientating the Present, Forecasting the Future*. New York: Oceana Publications, 1961.

Rosenzweig, Saul. *Freud, Jung, and Hall the King-maker: The Historic Expedition to America (1909)*. St. Louis: Rana House Press, 1992.

Saunders, Frances Stonor. *The Cultural Cold War: The CIA and the World of Arts and Letters*. New York: The New Press, 2013.

Simpson, Christopher. *Science of Coercion: Communication Research and Psychological Warfare, 1945-1960*. New York: Oxford University Press, 1994.

Stevens, Jay. *Storming Heaven: LSD and the American dream*. New York: Grove

Turner, Fred. *The Democratic Surround: Multimedia and American Liberalism from World War II to the Psychedelic Sixties*. University of Chicago Press, 2013.

Tye, Larry. *The Father of Spin: Edward L. Bernays and the Birth of Public Relations*. London: Picador, 2002.

Wells, H. G. *The Shape of Things to Come*. New York: The Penguin Group, 2006.

Whorf, Benjamin L. *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*. Cambridge: MIT Press, 1964.

Wiener, Norbert. *Cybernetics Or Control and Communication in the Animal and the Machine*. Cambridge: MIT Press, 1965.

Wilford, Hugh. *The Mighty Wurlitzer: How the CIA Played America*. Cambridge: Harvard University Press, 2009.

Wolfe, Tom. *The Electric Kool-Aid Acid Test*. New York: Farrar, Straus and Giroux, 1968.

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# The Cogitative Power: Aquinas' Development of His Predecessors' Views

**Dr. Mark Barker**

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**ABSTRACT:** Aristotle's "deliberative imagination," "passive intellect," and "particular reason" were formulated by these later commentators as the inner sense of the "cogitative power" occupying the middle ventricle of the brain. Integrating Avicenna's notion of the animal "estimative power" with Averroes' discussion of the human "cogitative power," Aquinas emphasized the key role of cogitation – as the embodied medium for apprehending singulars – to all intellectual operations of the human being. Barker lists six functions of the cogitative power, as specified by Aquinas. The more "sense-related" functions Barker defines as the perception of (1) the useful and the harmful and of (2) the particular individual. The more "intellect-related" functions Barker defines as (3) preparing phantasms for abstraction, (4) serving as an instrument for the intellect's indirect apprehension of the singular, (5) producing the minor premise of the Aristotelian "practical syllogism," and (6) reasoning from one particular to another.

## INTRODUCTION

The cogitative power is a little-known topic in Aquinas's philosophical psychology. Yet it is of great importance, since it constitutes the bridge between the embodied external senses and imagination, on the one hand, and the immaterial intellect and universal reason, on the other. For Aquinas, as for Aristotle, imagination deals only with sensory images, while the immaterial intellect deals with non-sensory universal concepts. In contrast, the cogitative power, like the imagination, is localized in the brain, and it has individual identities as its object. It also has a key role in the existential judgment, for, as we will see, Aquinas teaches that "the cogitative apprehends the individual as existing under a common nature."

Perhaps the best way of understanding the many different functions that the cogitative performs is to unveil its historical origins in ancient Greek and medieval Arabic philosophy. Having done so, one can elucidate the terminology that describes the infra-intellectual nature of this power. Aquinas inherited several names for the cogitative power. These names help indicate its myriad functions, which range from perceiving threats to moral reasoning regarding individual actions. Although this paper employs Thomistic and Aristotelian technical philosophical language, it will hopefully provide some guideposts through this challenging material.

For Aristotle, the intellect and will have "despotic" (i.e. absolute) control over the body's voluntary movements, but only "political" (i.e. indirect) rule over the lower sensory powers, whether they be appetitive or imaginative. Hence, these lower powers can resist the intellect's judgment; they do not necessarily obey. When one's intellect commands one's hand to move, it does so with absolute authority. Yet when one's rational appetite orders an emotion in a sensory appetite to change, the result is usually far from instantaneous.

Aristotle distinguishes the power of understanding (*nous*) or universal reason (*logos tou katholou*) from the capacity for reasoning regarding contingents, i.e. the reasoning (or calculative) power. These are uniquely human capacities of the imagination in conjunction with intellect, as evidenced by the exclusively human capacity for moral reasoning regarding our actions. This is the first origin of the cogitative power.

To take a systematic approach, one can demonstrate the existence of a cognitive power inferior to intellect as follows. Cognition necessarily precedes appetition, since one cannot seek to acquire or avoid what one is wholly unaware of. Humans sometimes make simultaneous contradictory judgments regarding some thing or action. This is especially evident in the case of neurotic or psychotic behaviors. For example, a paranoiac's imaginary assessment that someone is a threat causes him to

discount all intellectual arguments to the contrary. Although the paranoiac's intellect is present as a specifically human capacity, as evidenced by language-use, its activity is impeded, and he considers what is only imaginary to be real.

Less dramatically, one may form contradictory intellectual and instinctive judgments; as in "a third piece of cake should not be eaten" (in view of the calories it contains) and "a third piece of cake is desirable" (in view of its flavor). One can make a cognitive application of the principle of non-contradiction to such opposed evaluations. The principle of non-contradiction states that something cannot both be and not be, at the same time, and in the same respect. As applied here, one power cannot assess something both positively and negatively at the same time and in the same respect. Therefore, there are two judging faculties, one sensory, the other intellectual, which do not always act in unison.

Aristotle followed a similar reasoning process in introducing a sub-intellectual cognitive capacity that forms practical judgments regarding singulars. Chapters 9-11 are in some ways the high point of *De Anima* Book 3, for they show how the soul's powers interact so as to allow animals to act in the world. Whereas Platonic dualism rendered the interaction of soul and body mysterious, Aristotle's holistic account of soul and body allows for a seamless account of the relation between cognition and desire.

In Chapters 9-11, Aristotle distinguishes two kinds of imagination. In brutes, *sensory* imagination acts in tandem with the sensory appetites. In contrast, the rational or deliberative imagination can apply the universal judgment of right reason to oneself and to a concrete act. Aristotle contrasts deliberative imagination's particular judgment with intellect's universal ethical judgment: "Since the one judgment or reasoning (*logos*) is universal and the other is particular, for the first tells us that such and such a kind of man should do such and such a kind of act, and the second that this is an act of the kind meant, and I a person of the type intended, it is the latter opinion that really originates movement, not the universal." The parallel text in the *Nicomachean Ethics* gives the example of a son's duty to respect his father. "All sons should respect their fathers" is a universal intellectual judgment. Deliberative imagination then applies this to one's concrete situation. One only moves oneself to act by means of a singular judgment bearing upon oneself and a designated object.

In late antiquity, a Greek commentatorial tradition (unknown to Aquinas) held that the passive intellect (*nous pathētikos*) of *De Anima* 3.5 does not refer to intellect, properly speaking, but to sub-intellectual capacities such as imagination. Similarly, Avicenna, Averroes and Aquinas take the passive intellect as equivalent to (or inclusive of) the cogitative power. Hence, *De Anima* 3 chapters 5 and 9-11 are the ultimate origin of the cogitative power. Aquinas follows Averroes' interpretation of *De Anima* 3.9-11 when he teaches that the *sub-intellectual* cogitative power works against the right assessment of a situation in the weak-willed.

Thus, Aquinas formulated his doctrine of the internal senses in general and the cogitative in particular based on the Latin translations of Avicenna's book on "The

Soul", known as his De Anima, and of Averroes' Long Commentary on the De Anima. Let us briefly present these two thinkers' views. In order to explain animal behavior, Avicenna added the estimative power to the Aristotelian triad of the common sense, imaginative power and memory. Not only did Avicenna introduce a new power into Aristotelian psychology; he also considered the estimative power to be the ruling internal sense. The estimative grasps sensed objects as either harmful or beneficial by means of *notions* or *ideas* (the Arabic is *ma'ānin*, most literally, 'meanings'). A mouse views a cat as dangerous, or a beaver views a stick as useful for dam-building by means of such notions. The estimative power's object is thus sensory (rather than intellectual) notions of good or evil.

For Avicenna, the human cogitative joins and divides both images and notions of harm or benefit. These notions in no way attain the universality of intellectual concepts. Yet they surpass mere imagination since, as such, they cannot be pictured or otherwise represented. Nonetheless, Avicenna holds that they are always joined to external sensibles or internal images. In this, they differ from concepts. For, in contrast to Aquinas, Avicenna holds that the intellect is freed from the need for images or phantasms (the Greek term) once abstraction has taken place. The Latins translated *ma'ānin* by the Latin term *intentiones*, thus yielding estimative and cogitative "intentions" as a distinct kind of sub intellectual but supra-imaginary cognitive object. Aquinas explicitly notes that 'intention' does not mean the same thing when said of the cogitative's sub intellectual ideas as opposed to the will's intention to act.

For Averroes, the cogitative power grasps the individual as such. It is by the cogitative that one perceives "Socrates" when one sees him approach. Averroes writes: "[The cogitative] power is a kind of reason. And its activity is nothing but the placing of the idea of the imagined form in its individuality in memory, or the discerning of it [i.e. the individual] from [the image] in conception and imagination." Averroes rejects the Avicennian estimative as an unnecessary novelty, and along with it, animal ideas of harm or benefit. Restricting himself only to overtly Aristotelian terminology, Averroes replaced the brute estimative with mere imagination. Rather than ascribe estimative ideas of harm or benefit to animals, he speaks of instinct. For Avicenna, the human estimative grasped sub-intellectual ideas, while the cogitative composed and divided these ideas. Averroes assigned these functions to the cogitative.

## II. AQUINAS ON THE COGITATIVE

Aquinas synthesizes the Aristotelian account of imagination and memory with the Avicennian estimative power. Aquinas distinguishes the sensory soul's faculties by applying the following principle: one defines a *power* by the proper *formality* under which it apprehends its *object*. External senses such as sight and hearing receive external sensory forms such as color and sound. Aquinas adopts Avicenna's language of the "internal senses." For Aquinas, the four internal senses are the common sense,

imagination, the cogitative power, and memory.

The common sense (sensus communis) provides awareness of and discriminates between external sensory impressions. One can refer to the Aristotelian capacity as the common sense to distinguish it from the unrelated “common sense” of ordinary language. This Aristotelian power of the soul unites the disparate external sensory qualities such as color, sound, smell, odor and texture regarding a single object, say, an apple. Imagination retains the unified sensory impression of the apple.

Aquinas almost always engages in gradated assent or dissent from his predecessors. He thus forms a new synthesis meant to exclude oversights but retain the truth from each. This is what he does regarding Aristotle, Avicenna and Averroes regarding human and brute supra-imaginary sensory cognition.

Thus, Aquinas modifies and synthesizes Avicenna’s and Averroes’ views on the estimative and cogitative. Like Avicenna, Aquinas attributes the estimative grasp of sensory harm or benefit to brute animals. Like Averroes, Aquinas uses ‘cogitative’ for the exclusively human power that apprehends non-externally sensed notions. Unlike Avicenna and like Averroes, Aquinas calls the corresponding power in perfect animals the estimative (aestimativa) because it cannot perform the additional functions rendered possible by continuity with intellect. Aquinas integrates Averroes’ account which stresses the cogitative apprehension of individual intentions. Due to the cogitative’s continuity with intellect, it is the highest, most perfect internal sense.

I submit that it is best to use ‘perception’ to refer to what Aristotle called the indirect sensation of an individual. Aristotle notes that one directly senses a colored sounding object, yet one does not grasp individual identity by means of external sensation. One senses an individual such as “Callias” indirectly, or, to use Aristotle’s term, incidentally. In keeping with modern English usage, it seems best to reserve ‘sensation’ for the apprehension of proper sensibles such as color and sound, and common sensibles such as shape and size.

Once the estimative or cogitative has associated harm or benefit with some object (e.g. a predator), the memorative power retains the corresponding notion. The common sense, imaginative, cogitative and memorative powers allow humans to sense and evaluate objects in their environment, and then react appropriately by the sensory appetite and locomotive power.

Let us now proceed to discuss relevant terminology for the cogitative. We can then examine its sensory nature and proper object.

Following Aristotle, Aquinas argues that materialists are mistaken when they claim that even the most abstract mental acts belong exclusively to a body or a bodily state. However, one can fall into the opposite error by focusing so exclusively on the immaterial intellect as to overlook the internal senses’ indispensable role in human knowledge, not just in its beginnings, but in all stages of human cognition. One may call this overemphasis epistemological intellectualism. Such intellectualism ultimately can lead to an anthropology that seems rather dualistic. This is contrary to Aristotle’s

doctrine that “there is no thought without an image” and that “the intellect thinks the forms *in* the images.”

Aquinas clearly teaches that the human capacity for abstract reasoning makes us cognitively superior to all other animals. Yet, like other animals, humans unavoidably rely on internal senses such as the imagination and the cogitative (or estimative) in their thought processes.

An in-depth study of the internal senses’ respective functions can help establish a middle ground between the two extremes of physicalism and intellectualism. While materialists attribute all mental acts to the brain, the standard Thomistic account of universal knowledge tends to focus exclusively on intellect, with the internal senses serving merely as a conduit to transmit images from the external senses. Yet, for Aquinas, the internal senses have a crucial function in *all* human knowledge.

## III. TERMINOLOGY: ‘PASSIVE INTELLECT’ AND ‘PARTICULAR REASON’

Aquinas uses varied terminology for this internal sense. Aquinas considers Aristotle’s ‘passive intellect’ and ‘particular reason’ in *De Anima* 3.5 and 3.11 (respectively) to refer to the cogitative power, as we see here: The passive intellect, of which the Philosopher speaks, is not the potential intellect, but particular reason, which is called the cogitative power. It has a determinate organ in the body, namely, the middle ventricle of the brain, as the Commentator [i.e. Averroes] says in the same place; and without it the soul understands nothing at present; though it will do so in the future, when it will not need to abstract from phantasms [i.e. in the beatific vision].

Aquinas maintained this account of the cogitative unchanged from his first major work, the *Sentences* to his last, the *Summa theologiae.* Aquinas makes three crucial assertions in this important text. First, the cogitative is omnipresent in the life of the mind due to the intellect’s dependence on phantasms. Second, the cogitative is localized in the brain. Third, the passive intellect is not the “possible” or potential intellect, but the cogitative power. Let us consider each.

First, since the immaterial intellect cannot operate independently of a bodily instrument in the present life, humans cannot understand without the cogitative. As we will see, the cogitative plays a role in the three acts of the mind. These acts are: apprehension of concepts, judgment, and reasoning. One can readily understand these mental acts by attending to their corresponding linguistic expressions. One expresses an apprehended concept by a universal *term*, a judgment by a *proposition*, and a reasoning by a *syllogism*. A syllogism is a combination of interrelated statements wherein the conclusion follows from the premises.

Aquinas explicitly states that, while universal reasoning is a function of the intellect, the cogitative functions as *particular* reason. While universal reason forms judgments with exclusively universal terms, the cogitative forms judgments containing singular terms. Thomistic accounts of human cognition could benefit by integrating the

cogitative's key role in thinking of, reasoning about, and speaking of singulars.

Second, following Avicenna and Averroes, Aquinas holds that the cogitative is localized in the brain's middle ventricle. Although one cannot reduce the cogitative power to its material substrate, the cogitative is the form or first act of specific organs, namely, certain brain centers.

Third, Aquinas explicitly teaches that '*passive* intellect' does not refer to the possible or *potential* intellect. In the *Contra Gentiles*, he writes: "the habit of science is not in the passive intellect…but rather in the possible intellect." The potential, or possible intellect, is part of what we call 'intellect' in ordinary language; our ability to retain and utilize abstract concepts. Nonetheless, prominent translations render intellectus passivus as "possible intellect" and *intellectus possibilis* as "passive intellect." Although recent translations have begun to correct this error, past scholarly literature sometimes refers to the potential intellect as the passive intellect and *vice versa*.

An objection in *Summa theologiae* 1.78.4 suggests that the cogitative is an entirely different power from the estimative: "The cogitative's act…[is] not less distant from the act of the estimative…than the estimative's act is from the act of imagination." Aquinas replies: "The cogitative and memorative have such an eminence in man, not due to that which is proper to the sensitive part, but from a certain affinity and proximity to universal reason, according to a certain overflow. And thus they are not different powers, but the same, yet more perfect than they are in other animals." Although the cogitative is more perfect than the estimative, there is not a difference in kind, but only in degree, between the two powers. The cogitative's greater perfection is due to its continuity with intellect, by which it is elevated to perform higher acts. Although universal reason's influence allows the cogitative to perform acts which the estimative is completely incapable of, the two powers' objects are identical insofar as both deal with intentions that the external senses cannot perceive.

In the context of indirect intellectual cognition of the singular, Aquinas identifies the cogitative's object as individual intentions. Hence, the cogitative's proper object is twofold: individual notions such as Socrates or Plato, as well as notions of harm and benefit.

Although Aquinas never states the estimative's proper object, it too grasps both individuals and harm or benefit. However, Aquinas makes a qualification regarding higher animals' apprehension of individuals: "the animal in no way apprehends by its natural estimative…individuals to whom its action or passion does not extend." Thus, the estimative's primary focus is what is to be sought or avoided as good or bad for the animal. In contrast, the cogitative has an additional speculative orientation whereby it can apprehend an individual as such in a way that transcends the drive towards the survival of the individual or the species. One may thus conclude that the estimative's primary object is intentions of harm or benefit. Since the estimative only apprehends

individual intentions in relation to such survival-oriented intentions, the individual intentions are subordinate to those of harm or benefit. Thus, individual intentions constitute a secondary object of the estimative.

## V. DIVISION OF THE COGITATIVE'S FUNCTIONS

By collating all of Aquinas's scattered texts on the cogitative, one can determine that it performs a total of six functions. The fundamental division is between those it shares with the estimative and those that transcend mere estimation due to universal reason's influence.

**List Two: Six Cogitative Functions**

A) Brute or Human Estimative:
1) Perceives notions (intentions) of harm or benefit
2) Perceives individual notions (e.g. Socrates)
B) Particular Reason:
3) Prepares phantasms for abstraction
4) Instrumental role in indirect reflective intellectual knowledge of the singular [via individual notions]
5) "Forms the minor of the practical syllogism"
6) "Reasons from one [singular] thing to another" (practical or speculative)

The last three functions depend on the cogitative's role as particular reason regarding the individual notions that intellect only knows indirectly. Aquinas mentions the sixth function in order to bring out how the inference to a conclusion regarding a singular, whether practical or theoretical, is a distinct act from forming a discrete singular proposition (such as a singular minor premise).

One could object is that it seems incongruous for the same power to govern both instinctive actions, such as an infant's taking the breast, and the quasi intellectual functions of judgment and reasoning regarding singulars. Hence, the cogitative's apparently heterogeneous acts may seem to lack cohesiveness. Yet a distinction based on Aquinas's use of 'estimation' as applied to humans sheds light on his account. It follows from Aquinas's statements that one can divide the cogitative's functions into two levels: intellect-related and sense-related. One should attribute those cogitative acts that depend on intellect to *particular reason*, and those that only require sensation to the *human estimative*. By this distinction, one situates the cogitative's many operations on a vertical axis from least to most cognitively advanced. The cogitative's first two functions pertain to the human estimative. These acts involve reason only indirectly, as in acquired intentions of harm or benefit, or not at all, as in a newborn infant's seeking to nurse. The four intellect-related functions belong to particular reason, the highest being speculative discursive reasoning that makes use of

singular instances, such as the deduction that, if all humans are rational, Socrates must be rational.

This way of parsing out the cogitative's acts is merely an explicitation of Aquinas's own usage. Aquinas employs 'particular reason' and 'passive intellect' exclusively regarding the cogitative in humans who have attained the age of reason. He writes: "The sensitive power at its highest point participates somewhat in the intellectual power in man, in whom sense is joined to intellect." The highest point of sensory activity thus corresponds to the cogitative as particular reason. The cogitative power can only perform its higher functions because it is united to the intellect.

As with most of Aquinas's key terms and notions, his use of 'estimative' and 'cogitative' shows no fundamental change throughout his careeer. In his earliest discussions of the cogitative and estimative in the *Sentences*, Aquinas has already assimilated and synthesized Avicenna's and Averroes' views. Aquinas explicitly distinguishes the animal estimative from the human cogitative in Sentences 4.49.2.2.

Although Aquinas never states the distinction between the human estimative and particular reason explicitly, he habitually refers to the estimative rather than the cogitative when referring to infants, children or the insane, as well as human sensuality in general. The mature Aquinas refers to the estimative power in humans, significantly, in reference to madmen: "The judgment and apprehension of reason is impeded by the violent and disordered apprehension of imagination, as is the estimative power's judgment, as can be seen in the insane." Aquinas refers to the estimative rather than the cogitative precisely because particular reason's operations depend on universal reason, and the latter is impaired in the insane due to the imagination's malfunction. One can reasonably apply 'estimative' to humans more generally regarding cognitive acts that do not involve reason, whether in children or in instinctive reactions in adults. One finds confirmation of this in Aquinas's use of *aestimare*, beginning with the *Sentences*. Thus, in discussing the passion of revenge, Aquinas observes: "the injury against a person has a natural horror, nor does it end in some real good for the one committing it, but only an estimated good, i.e. vengeance." Aquinas frames the apparent as opposed to the real good as the object of estimation rather than intellection and cogitation.

The cogitative has a key role in human knowledge of singulars. For Aquinas, the intellect's proper object is the universal nature. Hence, it cannot know the singular as such, but only insofar as it falls under the universal. Aquinas writes: "The cogitative apprehends the individual *as existing under a common nature*." Aquinas also attributes an "absolute judgment regarding singulars" to the cogitative power. These comments refer to the cogitative's key role in what Thomists now call the existential judgment. Since the intellect can only know singulars *indirectly*, that is, by reflecting back on its own activity, the cogitative is the highest power that has direct knowledge of singulars. We could not be aware of the people and things that surround us as actually existing

without the cogitative's apprehensions of singulars. Of course, the cogitative alone is insufficient for us to know things as existing. Existential judgements also require the immaterial intellect's grasp of being as its formal object.

Shortly after Aquinas's death, Scotus rejected his view that the intellect has no direct knowledge of singulars. For Scotus, each individual has its own proper nature; thus Socrates has "Socrateity." This ontological privileging of material singulars seems difficult to reconcile with their inherent contingency. The idea that each individual has its own individual nature was a step towards Ockham's conceptualism. Ockham went on to hold that only singulars are real and hence there are no universal *natures*, just *concepts* that group things together. In saying that the concept of *horse* is fundamentally no different than that of, say, *pegasus*, Ockham laid a crucial foundation-stone of Modern philosophy. Otherwise put, Ockham made a crack in the foundation of Aristotelianism that the Moderns would increase so much as to yield Postmodern nihilism.

In conclusion, this paper has provided a brief historical and systematic presentation of the cogitative faculty, its objects, and it acts. We have clarified several confusions that the topic could give rise to. Of course, what we have seen is only the tip of the proverbial iceberg. (My forthcoming book on this topic goes into greater detail on all the points presented herein.)

The cogitative power is relevant to many questions regarding the relation between the soul and the body, such as how to distinguish between aspects of mental acts that are brain-based, and those that pertain to the immaterial intellect and thus transcend the brain. Despite the unavoidable technical terminology, I hope this introduction might serve to stimulate interest in this important and timely topic.

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## FINAL CONTEMPLATION

If psychology is a science founded on human dignity,
what sciences are founded on subsidiarity and solidarity?

What dominates our attention about the "effects" of digital?
What effects remain "hidden" until they surprise us?

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