Center for the Study of Digital Life

Dianoetikon 1 (2020): i-xii

ECOLOGY OF THE INNER SENSES: AN INTRODUCTION

Mark Stahlman, Peter Berkman and Adam Pugen
Center for the Study of Digital Life

Dianoetikon: A Practical Journal *is a publication of the Center for the Study of Digital Life (CSDL). We are a strategic research group engaged in educational and advisory services. Our mission includes the commitment to develop a new range of social sciences, with a particular focus on psychology and economics. This first issue explores Faculty Psychology and, in particular, the organization and practical implications of the "Inner Senses," which are the subconscious seat of human perception. This Introduction includes sections on the Center, this Journal, details of the contents of this volume, background on our study of the Inner Senses, our plans for future research.*

INTRODUCTION

This is the first issue of *Dianoetikon: A Practical Journal* from the Center for the Study of Digital Life (CSDL). The Center was formed in 2015 and is a non-profit strategic research group focused on the impact of digital technology on society and its people. We call ourselves "technological constructivists" and view human behaviors and attitudes as being fundamentally shaped by our dominant communications technologies. Since digital technology aims to displace humans (and even become self-aware in the process), it is something quite new to civilization, so it requires a new effort to understand the accelerating consequences.

We are a diverse group of entrepreneurs, investors, educators, authors and geopolitical experts who have come together from around the world to dig much deeper towards comprehending our current condition than is typically possible. We were formed to "think the unthinkable." Our guiding principle is the recognition that the previous psycho-technological paradigm is finished and we have already been living in a different world for the past decades. Globalism, which grew out of the world order crafted after WWII, is finished – upending that previous stability. We already live in a world of Three Spheres: East, West and Digital, which means massive uncertainty about the looming outcomes.

This new Digital Paradigm presents a wide-range of new problems, dangers and opportunities. Since many people continue to live in what Marshall McLuhan called the "rear-view mirror," resisting the recognition of what has already happened to them, basic risks at every level have escalated -- as reflected in board-rooms and on front-pages worldwide. Confrontations, driven by raw misunderstandings, seem inevitable. McLuhan underscores the dangers that accompany these fundamental shifts in "identity."[1] The Center was formed

to help minimize the escalating dangers of these potentially catastrophic clashes.

The Center's mission includes the commitment to develop a new range of social sciences – with particular focus on psychology and economics. It is now widely recognized that these disciplines have fallen into disarray and, for the most part, have failed to achieve either the promised knowledge or results offered when they were established (and reformed) in the 20th-century. A series of attempts to reduce humans and their affairs to what can be "modeled" have left us vulnerable to all that is "exogenous" to these naive reductive approaches. In many ways, we have collapsed into the "land of the blind" along the way.
Human perception has been stripped of its ability to recognize patterns, in a world over-saturated with fantastic make-believe images. Digital technology, based on precise memory architectures, confronts this fantasy and is already changing these attitudes. In order to avoid modern fantasies of idealized "world construction," a retrieval of earlier sensibilities is now required. One motto for the Center is "Digital retrieves the Medieval" and perhaps that is most evident in psychology. Modern psychology has removed the "psyche" (the Greek term for which "soul" is perhaps closest in English) and replaced it with clockwork and computer chips. Putting the psyche back requires retrieving Faculty Psychology, as it was shaped before the Printing Press. This issue of *Dianoetikon* seeks to begin that process.

DIANOETIKON: A PRACTICAL JOURNAL

There can be no ecology without an adequate anthropology.
- Pope Francis[2]

Dianoetikon is a Greek word, which means 'the power of thinking-things-through'. We have adopted it from Aristotle's *On the Soul*. The word kept its life in the early middle ages when Bishop Nemesius made it central to his anthropology, and was further "set in stone" when St. Thomas Aquinas translated it to the *vis cogitativa*, the highest bodily power of the human soul.

Our subtitle, "a practical journal" refers to the real nature of this power, as it deals with "particulars", not "universals". Being bodily, concepts are alien to it — rather it is the height of subconscious human percepts, which we study and lay bare to scrutiny. The subtitle is also an homage to Marshall McLuhan's first essay, written under the guidance of Fr. Gerald B Phelan, "G. K. Chesterton: A Practical Mystic", where McLuhan noted the English apologist's skill in using analogy, chiasmus, paradox to reveal structures of being.

This journal will appeal to those who have noticed little relevance from the fields of modern social science (psychology, economics, politics), and their futility in dealing with the new problems and threats appearing in this century. We hope that it will serve as a key in pointing to a new grammar, a new mode of

being brought about by changes to our technological environment which have already occurred.

Our contributors are academics and ‘autodidacts’ from many fields who are united by an understanding that we are already in a new paradigm brought about by ubiquitous digital technology.

Our intended impact is to stir further investigation into topics which have been largely ignored or forgotten, and to revitalize these fields of social science with a heightened awareness and ability to meet challenges humanity has never faced before.

OUR STUDY OF THE INNER SENSES

Shortly after CSDL was formed, we began to anticipate those areas needing further research. Psychology quickly became our focus. Its history, its motivations and its progress/failures all drew our attention. Marshall McLuhan, whose insights into the operations of technology on the human psyche guided our initial approach, also seemed to lack a firm basis in modern (or ancient) psychological theory/practice. It was decided that a “breakthrough” was needed and we discovered that this required stepping outside the modern framework. We began to look for what had been “forgotten” about psychology and discovered that it was provided by Thomas Aquinas. Aquinas is typically thought of as a “theologian” (or, perhaps, a philosopher), but, alas, such modern disciplinary boundaries made little sense in 13th-century Paris. Indeed, until it became “experimental” in the 19th-century, psychology was typically considered as a branch of “philosophy” (indeed, Harvard didn't separate these into their own departments until 1933). What sets Aquinas apart from many of his contemporaries was his careful consideration of recently “discovered” contributions from 4th-century BC Aristotle. Aristotle had “invented” psychology with his *Peri Psyche* (known more commonly by its Latin title, *De Anima*), which had stimulated much discussion over the ensuing centuries, notably by Hebrew scholar Maimonides and Islamic scholars Avicenna and Averroes. Like Aquinas, they all had incorporated Aristotle into their work, often writing commentaries themselves. As it turns out, Whitehead's statement that “all Western philosophy is a footnote to Plato” was wrong.

In many ways, Aquinas had become the culmination of 1000+ years of psychological investigation – some philosophical and some medical. But, since Aquinas is not widely studied today (with the exception of small pockets of Catholic scholars), we wondered where the Center would find the expertise required. Starting in 2016 (and continuing for the next two years), the Center participated in one of the only Aquinas “study groups” around, organized by neo-Thomist scholar Peter Redpath. It was there that we met Mark Barker, whose essay replicating his 2016 presentation at what we called a summertime “Aquinas-Fest” is published for the first time in this issue. Along the way, many others were consulted. The writings of Thomist semiotician John Deely

contributed much to our understanding of how “signs” first became a carefully understood topic in what he called the “Latin Age.” His protege, Brian Kemple, added a great deal and helped to ensure us that we were on the right track. Literature searches turned up (mostly) obscure scholars writing about the “inner senses” in the 20th-century (one of whom, Julien Peghaire, is reprinted in this volume). Latin treatments from the 19th-century were interrogated. Investigations were launched into how-and-why the Catholic Church neglected to bring Aquinas's understanding forward. Controversies dating to the 16th-century were explored. The Warburg Institute contributed Ruth Harvey's 1975 monograph *The Inward Wits (*excerpted in this issue). Most recently, we have gotten in touch with a group of Spanish scholars who have kept this research alive, as reflected in the essay by Fr. Juan Jose Sanquineti in this volume.

We sincerely hope the collection of essays in our *Ecology of the Inner Senses* captures the breadth and depth of this ongoing and vital research.

FUTURE RESEARCH

“Faculty Psychology” is just the beginning. Following the tripartite organization of what is called “Catholic Social Teaching” – begun in earnest by the Church in parallel with the “experimental” turn in psychology in the late-19th century – the Center's research efforts have two more significant areas to explore. Divided into Human Dignity, Subsidiarity, and Solidarity, CSDL's social scientific research also has three primary components. Psychology allows us to consider the faculties/operation of the human psyche (aka “soul”), which is the foundation of Human Dignity. Subsidiarity will be the basis of our work on the second volume of *Dianoetikon*, tentatively titled “Digital Distributism” (after a phrase coined by Douglas Rushkoff).[3] Solidarity will then be tackled in the context of Three Spheres: East, West, and Digital – a topic about which the Center has unique expertise.

Subsidiarity, familiar to many people as a result of E.F. Schumacher's 1973 study,[4] is the principle that matters ought to be handled by the smallest, lowest or least centralized competent authority. We are convinced that the Digital Paradigm's effects in political economics will be profoundly “de-centralizing.” Not that “digital” is fundamentally opposed to hierarchies or compelled to “flatten” all social structures but that it will be the technology which promotes the expansion of “competent authority.” Moreover, unlike the previous fantasy-dominated paradigm (driven largely by television and its offshoots like “social media”), digital will promote human responsibility in the face of robots taking over many human activities. We suspect that this radical rethinking of our responsibilities – personal, communal, and spiritual – will become the most notable feature of the Digital Paradigm.

In 1985, Neil Postman, a professor at NYU and protege of Marshall McLuhan, published his *Amusing Ourselves to Death: Public Discourse in the Age of Show Business.* His thesis was a version of McLuhan's promotion of Gestalt

psychology's notions of "figure" and "ground." The underlying structures of how we experience reality are rarely investigated, since for many they appear to be dangerous and, overwhelmingly, beyond anyone's ability to claim responsibility. So we entertain ourselves. To death. This unwillingness to consider the ground characteristics of our lives was captured by McLuhan when, writing to the philosopher Jacques Maritain in 1969, he observed, "There is a deep-seated repugnance in the human breast against understanding the processes in which we are involved. Such understanding implies far too much responsibility for our actions."[5] As we rethink our responsibilities in a digital world, our psychology will shift correspondingly.

Solidarity, like so much else, has become severely distorted in the previous paradigm, along with the responsibilities it implies. Television generated an environment in which people were encouraged to "Act Local: Think Global." "Saving the world" – which, to be fair, is a responsibility quite remote from most people's lives – has become a meme/slogan/jingle with massive negative consequences. Responsibilities at this level are not evenly distributed. Expecting people to live their lives as-if they must "do something" about what they cannot possibly affect, distorts our whole sense of being responsible for what is, in fact, within our grasp. As the slogan of the television-series "Heroes" (2006-2010), "Save the cheerleader; save the world," and much recent Hollywood production underscores, we are all expected to fantasize about being "super-heroes." Recycle to "save the environment" (when, of course, it does nothing of the sort). This is not an honest approach to solidarity. This is not the path towards taking responsibility for our own actions.

Humanity is facing an unprecedented threat. Astrophysicist Stephen Hawking summarized our situation as an impending invasion of a "superior alien civilization," to which our reaction is "OK, call us when you get here – we'll leave the lights on."[6] Norbert Wiener, the mathematician who coined the term "cybernetics" in the 1940s, was asked in one of his final interviews, "Dr. Wiener, is there a danger that machines – that is, computers – will someday get the upper hand over men?" His reply was "There is, definitely, that danger if we don't take a realistic attitude . . . The machines are there to be used by man, and if man prefers to leave the whole matter of the mode of their employment to the machine, by overworship of the machine or unwillingness to make decisions – whether you call it laziness or cowardice – then we're in for trouble."[7] Our view is that these "attitudes" cannot be changed without a radical paradigm shift. We believe that the Digital Paradigm has already begun that attitude change, admittedly a "pattern" often difficult to recognize in the welter of disorienting "information" we consume daily.

CONTENTS OF "ECOLOGY OF THE INNER SENSES"

"Ecology of the Inner Senses" begins with three essays, each authored by an editor of the issue. The first essay, entitled "The Inner Senses and Human Engineering," is by CSDL President Mark Stahlman. Focused on recent paradigm shifts in the human sciences, the essay sketches out some of the major institutions, actors, and relationships involved in the abandonment of the traditional western conception of human psychology (based on Aristotle's "On the Soul") for a conception that seeks, not so much to understand the human psyche as a *soul*, but rather to engineer it as a *mechanism*. Appropriately, Stahlman begins his essay by invoking the (in)famous Macy Cybernetics Conferences, from 1946 to 1953, where the new science of "communication and control" would embolden the anthropologist Margaret Mead and social scientist Lawrence K. Frank to imagine environmental conditions from which a new kind of human could be moulded. Essential to this effort, Stahlman notes, was the practice of "psychological warfare." As one of the primary "weapons" of the Cold War, the effort to manipulate human behaviour and attitudes permeated western research and industry, forming the basis of the emerging disciplines of "social psychology" and "communications research," along with the instrumentalization of these fields in the persuasive techniques of radio and television advertising. While reaching a high point in the television age, the scientific paradigm behind "psychological warfare" has its origins, Stahlman notes, in the nineteenth century development of "experimental psychology" evinced in the psychological empiricism of the widely influential German professor Franz Brentano and, more importantly, in the physiological approach to human psychology undertaken by Wilhelm Wundt in his Leipzig laboratory. Within the emerging "digital sphere" of human society, however, the drive to create artificial general intelligence (AGI), Stahlman asserts, brings previous efforts in experimental and cognitive psychology to a point of crisis – that is, a point where humans themselves may be replaced by robots. At the same time, it is in this new digital paradigm – supplanting the older "electric paradigm" of broadcast illusions – that humans may discover the essential difference between the human soul and the programmed machine, prompting the recovery of the psychological wisdom that western learning has for too long forgotten.

It is this recovery that provides the basis for the second essay in this issue, written by CSDL fellow, and culture and communications lecturer at the University of Toronto, Adam Pugen. Entitled "Psychology Beyond Technocracy: Marshall McLuhan, Magda Arnold, and The Meaning Crisis," this paper identifies the dynamic modes of awareness of emergent intellectual communities online as evidence of a fundamental shift in human attitudes engendered by digital communication. Specifically, Pugen takes the social media outreach of Toronto psychology professors Jordan Peterson and John Vervaeke as providing some of the clearest and most influential articulations of the pressing existential issues around which these online communities circulate. Pugen notes, however, that, while treating what Vervaeke has popularly labeled the "meaning crisis" in

western sensibility, both Peterson and Vervaeke lack the tools to properly understand and address this crisis. Rooted in the psychological biases of the "discarnate" electric media environment, both Peterson's and Vervaeke's intellectual approaches, Pugen asserts, perpetuate the "formal cause" of the very meaning crisis they aim to remedy. In contrast, the media scholarship of Marshall McLuhan and the psychological theory of Magda Arnold are offered by Pugen as more compelling sources due to their retrieval of the embodied *intellectual soul* as conveyed by Aristotelian-Thomist philosophy. Explicating Arnold's incorporation of Thomas Aquinas' discussion of the "cogitative sense" in her psychology of the emotions, Pugen uses Arnold's work to shed light on McLuhan's theory of media environments in order to contextualize the "meaning crisis" in relation to the distinct psychic attitudes shaped by electric and digital technologies.

In "The McLuhans and the Inner Senses," the work of Marshall and Eric McLuhan is examined in terms of its engagement with Thomist faculty psychology. Written by Peter Berkman, a CSDL fellow specializing in Marshall McLuhan and the medieval trivium, this essay asserts that McLuhan's knowledge of the psychological doctrine of Thomas Aquinas was constrained due to the environment in which McLuhan's learning occurred. Specifically, Berkman notes, the people upon whom McLuhan relied for Thomist instruction – namely, Fr. Gerald Phelan, the president of Toronto's Pontifical Institute for Medieval Studies, and Bernard Muller-Thym, the pupil of renowned Thomist Etienne Gilson – inherited a version of Thomism which, due in large part to the interpretation of the Jesuit scholastic Francisco Suarez, downplayed the role of the "inner senses" in Aquinas' faculty psychology. As a result, Berkman concludes, McLuhan based his exegesis of media effects on the ratios constructed by the "sensus communis" (the first inner sense in Thomist psychology), while largely ignoring the remaining inner senses of "imagination," "cogitation," and "memory."

It is this explanatory gap inherited by neo-Thomism that Fr. Julien Peghaire aims to remedy in his article "A Forgotten Sense: The Cogitative Power." Originally published in 1943, Peghaire's essay is an in-depth study of the *vis cogitativa,* a sensory power which has been obscured for centuries by the physicalist bent of experimental psychology. In contrast to modern scientific positivism, the metaphysical orientation of the Arab and Latin scholastics, Peghaire recounts, was not averse to explanations of animal and human perception that required the action of the immaterial, or *intentiones non sensatae*. Indeed, in order to explain the cognitive phenomenon, whereby different animal species recognize what is useful and harmful to themselves, the scholastics commenting on the texts of Aristotle concluded that there had to be an "estimative" sense in non-human animals. It was this "inner sense" – inherent to the animal soul – that supplied instinctual knowledge of the useful and the harmful, which could not be gathered merely from the external senses. Transposed to the human soul – dignified as it is by the power of intellection

united to a material body – the animal *vis aestimativa* (estimative power) became, for the scholastics, the human *vis cogitativa* (the cogitative power).

Distinct from, although functioning in concert with, the other internal senses of sensus communis, imagination, and memory, the cogitative power, according to the doctrine of Thomas Aquinas, possesses a number of closely related roles in human perception. Firstly, as an analog to the animal estimative power, the cogitative power (also called the "particular reason") apprehends what is useful and harmful in perceptual objects not merely through an inborn instinct but also through a comparison (*collatio*), informed by reason, of particular cognitive objects or "intentions." Moreover, while the estimative power allows animals to perceive objects as really existing individuals to pursue, flee from, or ignore, the cogitative power allows humans to perceive the concrete individual not only in terms of its immediate value or harm, but also in terms of its instantiation of a "common nature" or universal, such as *human* or *tree*. It is this function of the cogitative to serve as a bridge between the particular data of the senses and the universal concepts of the intellect that allows the cogitative both to prepare the "phantasms" retained by the imagination to be intellectually apprehended as universals, and to conduct abstract understanding back down to its relationship and application to concrete singulars. Since the intellectual virtue of prudence depends upon the application of universal moral principles to concrete situations, the cogitative, Peghaire notes, is vital to the exercise of this virtue, making the cogitative power key to practical human life.

The following contribution presents selections from University of Toronto medievalist E. Ruth Harvey's 1975 study "The Inward Wits: Psychological Theory in the Middle Ages and the Renaissance." Harvey's discussion is particularly noteworthy due to its tracing of the doctrine of the inner senses (or "inward wits") within the context of medieval medicine. In the 10th century treatise *The Royal Book* written by the Persian court physician Haly Abbas and translated into Latin in the 12th century as *Regalis dispositio*, Harvey finds an exemplary instance of the medieval medical concern to foster a working harmony between body and soul in the "hybrid" human disposition. Correlating bodily functions and organs to the hierarchical formation of three levels of "spirit" – the natural spirit (liver and veins), vital spirit (heart, arteries, respiration, and passions), and animal spirit (brain and nervous system) – Haly holds that it is *mens,* the highest power of the animal spirit, which comprises *phantasia*, *cogitatio,* and *memoria*, each of whose impairment is implicated in distinct bodily and mental conditions. Haly's account, Harvey notes, represents the model of human physiology accepted by medieval learning; descriptions of the inner senses of *phantasia*, *cogitatio*, and *memoria* (along with the Aristotelian *sensus communis*), would be taken up, refined, and debated upon, by the Arabian philosopher Avicenna and, later, Thomas Aquinas, the latter of whom would accept much of Avicenna's commentary, but reject his dissociation of the *intellectus agens* from material perception.

"The Common Sense, Perfection of the Order of Pure Sensibility" was written in 1940 by Marshall McLuhan's close friend and Thomist mentor Bernard J.

Muller Thym. In this article, Muller Thym differentiates the common sense from the other internal senses in Thomist psychology by arguing that, unlike imagination, cogitation, and memory, the common sense participates neither in the *ratio* (discursive reasoning) nor in the *intellectus* (intellective seeing) of human apprehension. Contrary to what Aquinas' teacher Albertus Magnus taught, the object of the common sense, Muller Thym asserts, is not the so-called "common sensibles" (such as movement, shape, and number), but rather the unified apprehension or "perfection" of the objects of the external senses. Just as the intellect is the terminus of the phantasms of the imagination, the common sense is the terminus of the proper sensibles of the external senses.

"The Cogitative Power: Aquinas' Development of His Predecessor's Views" is an original contribution by Mark J. Barker, a philosophy professor at the Notre Dame Seminary in New Orleans. Examining the Aristotelian commentaries of Avicenna, Averroes, and Aquinas, Barker details how 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.

In "The Interior Sensorium in Media Ecology: Justification for Study," professor of communications at the University of Texas Dennis D. Cali takes a different perspective on the topic of the inner senses. Noting the traditional media ecological study of the impact of media environments on sensory perception and consciousness, Cali looks to Eric McLuhan's discussion of the four senses of scripture in medieval exegesis as a potential launching pad for an investigation of the "interior sensorium" informed by mystical philosophy. Cali offers four justifications for a media ecological study of the interior sensorium: he proposes that such a study may (1) enrich our knowledge of human consciousness, (2) combat deterministic theories of media through identifying areas of human sensibility potentially unaffected by external sensation, (3) increase philosophical understanding of the human person as a mind-body unit, and (4) promote a holistic theory of knowledge, beyond such historically foundational dualisms as subject-object, inner-outer, mind-reality.

Concluding this issue's selection of articles is an English translation of a 2015 essay written by Juan Jose Carlos Sanguineti, who researches the philosophy of neuroscience at the Pontificia Università della Santa Croce. Entitled "The Cogitative in Cornelio Fabro: For a Non-Dualist Philosophy of Perception,"

Sanguineti's paper recapitulates many of the themes of this issue. Contrasting the scholastic account of the cogitative with modern idealist accounts of perception influenced by rationalism and empiricism, Sanguineti emphasizes the cogitative power as a holistic faculty, which integrates intellectual and sensitive potencies in the human perception of the real. From the perspective of contemporary neuroscience and philosophy, Sanguineti notes that the preconscious functions of the cogitative can be identified in mirror neurons and cortical and subcortical motivation pathways. Further, Sanguineti sees in the work of phenomenologist Maurice Merleau-Ponty and psychologist James J. Gibson helpful corroborations of, and contributions to, the non-reductivist doctrine of the cogitative. However, in appreciating the subtle and broad scope of the cogitative, Sanguineti concludes, the Aristotelian interplay of matter and form and the Thomist doctrine of participation of the lower in the higher provides a necessary intellectual ground.

The issue concludes with an annotated bibliography of faculty psychology, including material on its intellectual origins from Aristotle to Averroes, its refinement from St. Albertus Magnus to John Poinsot, its misguided retrieval in the late 19th and early 20th centuries, and its more rigorous study in recent times.

WHO ARE WE?

The Center is a unique organization. It was started based on work done for the Pentagon's Office of Net Assessment ONA), as founded and run by Andrew Marshall from 1973 until his retirement in 2015. Marshall's career stretched back to the early RAND Corporation, where he and his colleague Herman Kahn (later to launch the Hudson Institute) pondered the possibilities of a WWIII conflagration and how to prevent it from happening. Under Marshall, ONA had the responsibility to advise the Dept. of Defense by taking an all-things-considered approach (thus, "net" assessment), particularly regarding the Soviet Union and its capabilities/motivations. Among the various conclusions reached on the then-threatening Cold War, ONA repeatedly proved itself superior to others, including the CIA.

The founders of CSDL include Mark Stahlman and Phil Midland. Stahlman is a retired Wall Street analyst/strategist/banker, who brought AOL public in 1992. His success was based on recognizing patterns many others did not perceive. Midland is a retired Naval Intelligence officer, trained to observe and understand patterns that eluded others, himself a student of Samuel Huntington and long-time collaborator with Marshall at ONA on East Asia. Stahlman brings the "digital" credentials, whereas Midland brings the "east" expertise. We believe that bringing this knowledge and experience together, also involving dozens of domain experts across other key topics, very likely has never been done before.

The Center will be expanding its reach over the next few years and publishing *Dianoetikon* is an important step in that direction. We intend to start a "graduate school" to help train the sensibilities of future digital leaders. We

are also expanding into a "geopolitical expert network" for briefings/consultation with corporate and government executives. Our goal will be to sensitize more people to the methodologies of anticipation needed to "see around corners." We are convinced that "future" has already arrived and the capability to perceive it is not yet "evenly distributed." We are taking responsibility for doing something about that. Our study of the Inner Senses was designed to help cultivate the habits needed for this expanded form of perception. We welcome your help.

Notes

1. Marshall McLuhan, Quentin Fiore, and Jerome Agel, *War and Peace in the Global Village* (New York: Bantam Books, 1968).
2. Francis, Laudato si', sec. 118
3. Douglas Ruskoff, *Throwing Rocks at the Google Bus: How Growth Became the Enemy of Prosperity* (New York: Portfolio/Penguin, 2016), 224.
4. E.F. Schumacher, *Small is Beautiful: A Study of Economics as if People Mattered* (London: Vintage Books 2011).
5. Marshall McLuhan, Matie Molinaro, Corinne McLuhan, and William Toye, *Letters of Marshall McLuhan* (Toronto: Oxford University Press, 1987), 370.
6. Stephen Hawking, Stuart Russell, Max Tegmark, and Frank Wilczek, "Stephen Hawking: 'Transcendence looks at the implications of artificial intelligence – but are we taking AI seriously enough?,'" *Independent*, October 23, 2017, https://www.independent.co.uk/news/science/stephen-hawking-transcendence-looks-implications-artificial-intelligence-are-we-taking-ai-seriously-enough-9313474.html
7. Norbert Weiner, "Machines Smarter Than Men? Interview with Dr. Norbert Wiener, Noted Scientist," interview by Joshua Lederberg, *U.S. News and World Report*, (24 February 1964): 84.

References

Francis, *Laudato si'.* Vatican City: Vatican Press, 2015.

McLuhan, Marshall, Fiore, Quentin, and Jerome Agel. *War and Peace in the Global Village*. New York: Bantam Books, 1968.

McLuhan, Marshall, Molinaro, Matie, McLuhan, Corinne, and William Toye, *Letters of Marshall McLuhan*. Toronto: Oxford University Press, 1987.

Postman, Neil. *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*. London: Penguin, 2006.

Rushkoff, Douglas. *Throwing Rocks at the Google Bus: How Growth Became the Enemy of Prosperity*. New York: Portfolio/Penguin, 2016.

Schumacher, E.F. *Small is Beautiful: A Study of Economics as if People Mattered*. London: Vintage Books, 2011.

Hawking, Stephen, Russell, Stuart, Tegmark, Max and Frank Wilczek. “Stephen Hawking: ‘Transcendence looks at the implications of artificial intelligence – but are we taking AI seriously enough?,’” *Independent*, October 23, 2017. https://www.independent.co.uk/news/science/stephen-hawking-transcendence-looks-implications-artificial-intelligence-are-we-taking-ai-seriously-enough-9313474.html

Wiener, Norbert. “Machines Smarter Than Men? Interview with Dr. Norbert Wiener, Noted Scientist.” By Joshua Lederberg. U.S. News and World Report, (24 February 1964): 84-87.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 1-26

THE INNER SENSES AND HUMAN ENGINEERING

Mark Stahlman
Center for the Study of Digital Life

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 Neuropharmalogical 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 Sausilito, 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 Zorzybski (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 Worchester, 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 Leizig 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 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 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 recieved 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 Sausilito 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 "destablize 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. Saunder's 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 Saunder's 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/Pscylocybin 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 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 by “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 Sematics” (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. Odgen (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 parleyed 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 "linquistic 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 presenations 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 Worchester, 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 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. Petersberg. 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-Kamff 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 August 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-Brenswik, 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 Press, 1987.

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.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 27-48

PSYCHOLOGY BEYOND TECHNOCRACY: MARSHALL MCLUHAN, MAGDA ARNOLD, AND THE "MEANING CRISIS"

Adam Pugen
University of Toronto

The tradition of faculty psychology is brought to bear on contemporary online discourses purveying the sense of a "meaning crisis" in western consciousness. Taking the social media outreach and scholarly research of psychology professors Jordan Peterson and John Vervaeke as some of the most influential commentary on what Vervaeke has popularly labeled the "meaning crisis," this paper offers the media scholarship of Marshall McLuhan and the psychological theory of Magda Arnold as more compelling sources both for defining the so-called "meaning crisis" and for addressing it. Explicating Arnold's retrieval of Thomas Aquinas' discussion of the "cogitative sense" in her psychology of the emotions, this paper uses Arnold's work to shed light on McLuhan's theory of media environments in order to contextualize the "meaning crisis" in relation to the psychic attitudes correlative to electric and digital technologies.

THE MEANING CRISIS

As increasingly documented by academic researchers and popular commentators, the cultural shifts driven by social media platforms have been met with pervasive psychological turmoil; youth growing up with digital devices are experiencing troubling rates of depression and anxiety[1], and online discussions of culture and politics have largely come to be characterized by social resentment and tribal discord.[2] In this digital milieu, the sense that western culture has descended into a "meaning crisis" has provided the organizing principle for a number of online intellectual communities intent on probing the causes of, and potential solutions to, this crisis.

Two figures who have given, perhaps, the strongest momentum to this effort are Jordan Peterson and John Vervaeke, both, incidentally, psychology professors at the University of Toronto. Infamously, in 2016, Peterson helped catapult the online association of public figures known as the 'The Intellectual Dark Web' by posting a number of emotionally raw YouTube videos. Drawing on his clinical background and research into the psychology of political movements, Peterson urged individuals to resist the contemporary pull of both left-wing and right-wing identity politics through returning to a traditional Western ethics of personal responsibility and self-knowledge. Avoiding overtly political concerns, John Vervaeke less famously entered online awareness in 2019 by posting an ongoing series of YouTube videos entitled "Awakening from the Meaning Crisis." Vervaeke's prescription of Eastern spirituality such as the

practice of "mindfulness" reflected the shift in some of the online communities grappling with the meaning crisis from an 'Intellectual Dark Web' to an 'Intellectual Deep Web'.[3]

Importantly, having inherited the discourses of "embodiment" characteristic of twentieth century existential thought, both Peterson's and Vervaeke's contemporary appeal coincides with their articulation of models of human behavior which, through countering the mind-body split of Cartesian rationalism, aim to recover a fundamental unity between "spirit" and "matter," rationality and embodiment, theory and practice, that is oriented toward the embedding of existential meaning in the individual's daily life. Indeed, it is Descartes' grounding of metaphysical certitude in abstract reasoning alone, rather than in its emergence from embodied perception, that Vervaeke ties to the very historical genesis of the meaning crisis.[4] Following the tradition of embodied cognition and dynamical systems theory in cognitive science,[5] Vervaeke's proposed "awakening" from the meaning crisis involves experiencing higher-order "propositional knowing" as an emergent property of embodied processes of individual and collective "self-organization."[6]

Like Vervaeke (see note 1), Peterson sees the crisis of meaning in western culture as resulting from the disruption of the Christian worldview by scientific rationalism. Unlike Vervaeke, Peterson's solution to this crisis is not the grounding of mind in the self-organization of matter but rather the grounding of matter in the self-organization of mind – that is, through following the depth psychology of Carl Jung, Peterson aims to counter the meaning crisis by recovering the symbolism of Christianity and other religious traditions as the expression of living archetypes in the process of their biological and cultural evolution.[7]

The online presence of Peterson and Vervaeke attests both to the compelling degree of popular intellectual engagement fostered by cultural digitization, along with the sense that the very modes of knowing promulgated by digitization are spurring a deep-seated wariness of past solutions to problems of existential meaning. Nevertheless, through drawing on the work of two earlier University of Toronto professors – the media scholar Marshall McLuhan and the psychologist Magda Arnold – this paper will argue that the psychoanalytic and systems theoretic approaches to the meaning crisis advocated by Peterson and Vervaeke are implicated in, and thus perpetuate, the very meaning crisis they aim to remedy. In contrast, through applying McLuhan's grammar of media environments, along with Arnold's retrieval of Thomistic psychology, this paper will suggest ways in which the "meaning crisis" might be more productively approached.

THE MEANING CRISIS AND TECHNOLOGY

Famously, what McLuhan designed his media scholarship to address was the manner in which the patterns of technological mediation presiding in a given cultural milieu shape not only the content of communication mediated but, much more importantly, the very structures of perception on the basis of which such content becomes meaningful. In this regard, while depicting any major technological shift as generating a meaning crisis that invariably "obsolesces" the attitudes fostered by the previous technological environment, McLuhan saw the particular meaning crisis generated by the scientific revolution as grounded in the technology of the printing press; the fragmentary individualism and questioning of religious faith identified by Peterson and Vervaeke were, for McLuhan, consequences of the printed page's reduction of experience to fragmented bits of information connected by uniform and abstract linearity. The medieval grammar of existence was, in this way, upturned by the modern dialectic of uniform mechanical laws.[8]

Crucially, however, it is in the attitudes fostered by electric media – from telegraph to television – that McLuhan identifies a meaning crisis that directly obsolesces the western "ecology of worldview" (see note 1). This is because, despite the excessive abstraction of print media, it is only in electric media, McLuhan asserts, that the human being becomes physically "discarnate": "when man is 'on the phone' or 'on the air,' moving electrically at the speed of light, he has no physical body. He is translated into information, or an image."[9] As McLuhan observes, the psychic effect of this disembodiment, which is both the loss of physical grounding and the gain of seemingly superhuman abilities, is the sundering of the individual's relation to "Natural Law" – the conception, from Ancient Greece even to the modern industrial world, that a moral order exists in the natural universe and is discoverable by the individual's rationality.

Attributing the strongest and most enduring articulation of "Natural Law" to Aristotle – an articulation that, in the thirteenth century, Thomas Aquinas would successfully integrate into Christian theology – Vervaeke rightly emphasizes the centrality to Aristotle (and to the western "ecology of worldview") of the principle of *form.*[10] According to Aristotle, form (*morphé*) not only provides the inner organization or categorial *essence* of each material (*hyle*) thing, but also establishes an intelligible *con*formity or existential proportion between the form of the human body – identified by Aristotle as the intellectual soul[11] – and the forms of the world. It is through this intrinsically meaningful conformity that the intellect assimilates to itself – in effect *becoming* – the essences embedded in the material world, while at the same time remaining a distinct and relatively autonomous individual substance, capable of knowing being in its manifold but universal amplitude.

McLuhan's crucial observation – one explored in more detail by Eric McLuhan[12] – is that electric media obsolesce the individual's relation to "natural law" because, through extending human experience beyond the confines of the physical body, the individual is no longer related to his or her bodily *form*, which,

as the principle of human intellection, establishes proportions of universal value (and virtue) through realizing within itself the formal structure of being. Deprived of one's own *human form* through electric discarnation, the individual naturally loses the sense of one's personal responsibility to being; instead, "caught up in the hybrid energy released by video technologies, he [is] presented with a chimerical 'reality' that involves all his senses at a distended pitch…The mind, as figure, sinks back into ground and drifts somewhere between dream and fantasy."[13]

In this dismantling of ontological limits and boundaries – those between presence and absence, self and other, reality and fantasy – we can identify both the psychological basis for the contemporary "meaning crisis" and the inadequacy of Vervaeke's and Peterson's attempts to transcend it. Returning to the *hylomorphism* of Aristotle, while the principle of form is correlated with *actuality*, the principle of matter is correlated with *potentiality*; it is only by *limiting* the infinite potentiality of matter that form can differentiate matter into actually existing substances with defined proportions of material capacities. Through electric discarnation's obsolescence of the human *form*, however, it is the relatively undifferentiated potencies of human *matter* that appear psychologically paramount; this leads to the situation in which the intellectual apprehension of existential proportion (and thus *meaning*) is obsolesced by the material experience of fused ontological categories, such that, as McLuhan writes, "everybody will be nobody…The more quickly the rate of information exchange speeds up, the more likely we will all merge into a new robotic corporate entity, devoid of true specialism which has been the hallmark of our old private identities."[14]

Fundamentally, it is the psychic loss of *formal* differentiation – and the concomitant psychic stress on *materiality* – that undergirds the psychological orientations of both Peterson's and Vervaeke's solutions to the meaning crisis. In other words, while Peterson and Vervaeke both pursue an existential ground for the human realization of formal meaning, this ground is identified not with the actual apprehension of form (Aristotle's *formal cause*), but instead with the material conditions – ultimately derived from Darwinian fitness criteria – of such an apprehension (Aristotle's *material cause*). In this reduction of form to matter – of the actual universality of *being* to the potential particularities of *becoming* – Vervaeke and Peterson inadvertently participate in electric discarnation, such that the form of the human body becomes metaphysically equivalent, for Vervaeke, to self-organizing distributions of matter,[15] and, for Peterson, to primordial Will directly realizing itself as matter.[16]

In contrast, rather than uncritically (and unknowingly) adopting the perceptual biases of a particular technological medium (an attitude McLuhan regarded as "somnambulism"), McLuhan's answer to electric media was precisely to retrieve the animating *form* of the human body (the Aristotelian intellectual soul) as the means of perceiving how the psychological and sensory proportions sustaining the human form become internally adjusted and re-worked due to the environmental operation of media forms. Nevertheless, since his intellectual

background was in poetics rather than psychology, McLuhan's insights were not psychologically precise, a fact that has made McLuhan's often polarizing work open to misinterpretation and obfuscation by his defenders and detractors alike.[17]

With the aim of redressing this gap in McLuhan's work, the remainder of this essay will turn to the psychological research and theory of Magda Arnold. While teaching at the University of Toronto at the beginning of McLuhan's own professorship in 1946, Arnold would move shortly afterward to the United States, where her conversion to Catholicism would prompt her to connect the Aristotelian-Thomist conception of the human person to modern psychological and neurophysiological research. Specifically, as we will see, in Arnold's retrieval of the psychology of the "inner senses" introduced by Aristotle, and expanded upon by Aquinas, we may glean a powerful model of the "intellectual soul" in its daily functioning and animation of the human personality. In this way, McLuhan's psychology of media environments, both in its response to the "meaning crisis" of electric technology, and in its potential relevance to the ways in which this crisis may or may not persist in the *digital* environment, can be put on surer ground.

MAGDA ARNOLD'S RESPONSE TO THE MEANING CRISIS IN MODERN PSYCHOLOGY

In 1954, Arnold published her first major work *The Human Person: An Approach to an Integral Theory of Personality* with John A. Gasson as the primary co-author. A Jesuit priest, psychology professor, and close companion and intellectual associate to Arnold, Gasson introduced Arnold to Thomistic philosophy in 1949, after which they began a concerted effort to correct the pervasive tendency in twentieth century psychological theory to reduce the human personality to the operation of mechanistic and/or irrational material drives. Accordingly, *The Human Person* begins with a critical essay by Arnold on the largely unacknowledged metaphysical assumptions underlying the modern study of psychology.

Foremost among these, Arnold notes, is the philosophy of 'physical naturalism,' which – reflective of my discussion of electric discarnation – eliminates the metaphysical distinction between the inner *form* of the human being and the external *matter* of physical forces. "Man," according to this view, "is the latest product of an evolutionary process which started from inorganic matter and ended with the human being; thus nature is continuous. Therefore, strict deterministic causality holds throughout the realm of nature and everything in man must be explicable by the same physical and chemical laws that hold for inanimate objects. Man's actions are determined by a combination of external and internal forces in the same way that every natural object is; he is molded by his social environment and develops into a mature human being if his needs are integrated with social demands."[18]

Concerned solely with the Aristotelian principles of "efficient causality" (the sequence of agents or forces productive of a being) and "material causality" (the material composition of a being), the paradigm of physical naturalism necessarily excludes the Aristotelian principles of "formal causality" (the intrinsic essence of a being) and the closely related "final causality" (the purpose, or reason for existing, of a being). As Arnold notes, physical naturalism cannot, therefore, even from an empirical standpoint, explain the phenomenon of the human being, whose unavoidable experience of "freedom, responsibility, and purpose"[19] ties human psychology both to an essence and a purpose, which are radically distinct from what can be realized in the *forms*, not only of inanimate matter, but also of the living (or ensouled) matter of plants and animals.

Arnold's critique applies equally to "mechanistic systems" as to so-called "nonmechanistic" or "dynamic systems." Corresponding to my discussion of Vervaeke, Arnold notes that dynamic systems – in contrast to mechanistic systems – are purported to model not only changes in the location of a systems' elements, but changes in the very qualitative nature of a system (as when "life" is said to emerge from chemical activity or when "mind" is said to emerge from neuronal activity). Nevertheless, while used to model the behavior of lower-level and higher-level "systems" alike, from storms to human beings, dynamic systems, Arnold notes, still remain tied to the determinism of physical forces, thus eluding the distinct "formal cause" of human psychological reality.

The "analytical psychology" of Carl Jung, with its greater attention to psychic experience and to the reality of non-material values, holds more interest for Arnold, who credits Jung's therapeutic use of "active imagination" as influencing her work with Gasson on personality integration and the pursuit of the "self-ideal."[20] Importantly, however – as an idealist variation on "physical naturalism" – Jung's metaphysics fuses individual human psyches, and indeed reality itself, into a primal "collective unconscious," such that the "final cause" of human life is to understand one's own psyche as the self-regulating balance of conflicting archetypal powers. It is for this reason that, in Jungian psychology – as we saw in Peterson's evolutionary idealism – the *form* of the human psyche is ultimately reduced, not to the *objectivism* of dynamic (though deterministic) physical models, but to the *subjectivism* of the evolving psyche as God archetype. The therapeutic danger of this kind of mythological solipsism is aptly realized by Arnold: "Jung's unconscious is peopled with gods and demons, heroes and villains which represent the collective even more than the personal forces of the unconscious and are so taken to be reliable guides to personality integration. No wonder that Jung's patients are in danger of 'inflation,' of developing a 'mana-personality.' If out of themselves they can create gods and demons, powers and principalities to guide them, why shouldn't they become first elated and then inflated?"[21]

Dissatisfied with both subjectivist and objectivist psychological models resulting from the metaphysics of "physical naturalism," Arnold and Gasson attempt in *The Human Person* to show how the human being's discontinuity with the rest of nature on account of the characteristics of "freedom, responsibility,

and purpose" can only be understood in light of the formal and final causes of human activity. With regard to "final cause," Gasson and Arnold (drawing from Gasson's dissertation) identify the "self-ideal" as the motivating factor in human behavior and as the crucial area of intervention if the human being is to achieve an integrated personality on the basis of ordering oneself according to a "rational pattern" of values. For the purposes of this essay, however, it is the "formal cause" of such a rational pattern that is significant, and, in this regard, Arnold's so-called "appraisal theory of emotion" conveyed in her works *Emotion and Personality*[22] and *Memory and the Brain*[23] is instructive.

THE RETRIEVAL OF THE COGITATIVE SENSE IN ARNOLD'S APPRAISAL THEORY

It is a testament to the enduring explanatory power of scholastic thought that the substance of Arnold's influential theory of appraisal[24] is derived from the psychological doctrine of Thomas Aquinas. Specifically, Arnold's conception of the emotional constitution of the human personality depends upon the Thomist theorization of the *cogitative power*, which is itself rooted in Aristotle's discussion of the *estimative faculty*[25] as it was taken up by the Arabic scholars Avicenna and Averroes in their formulation of the doctrine of the *internal senses*. According to Aristotle's faculty psychology, both animal and human perception require the "proper sensibles" of the external senses (i.e. color, sound, smell, flavor and tangibility) to be integrated as single perceptual objects (i.e. a fruit, a man, a plant) through the operation of a common sense (*koine aisthesis*).[26] For Avicenna and, later, Albert the Great and Thomas Aquinas, the common sense or *sensus communis* is the first *internal* sense; from the different impressions (or *species impressae*) of the external senses, it produces (as a *species expressa*) an objective representation that is internally retained (again as a *species impressa*) by the *imagination*, the second internal sense. Importantly, however, the intentional objects of the common sense and imagination do not advance beyond the information received by the external senses as *intentiones sensatae*; in contrast, the estimative or cogitative sense, the third internal sense in Aquinas' model, is able to perceive objects as *intentiones insensatae*, that is, as more than what can be "intended" merely from sensation.

Peghaire introduces this power of the estimative sense by recalling the thinking of the medieval scholastics, who observed that "the ewe flees from the wolf even before it has experienced the danger which threatens it, although it follows the dog which nevertheless bears a strong resemblance to the wolf; it recognizes its own lamb, but refuses to suckle another; it seeks a certain herb as a source of nourishment, but spurns a certain other though it has never tasted it…"[27] In all of these instances, the estimation performed by the animal as to what is useful, harmful or indifferent to the animal's existence, only partially depends upon the activity of the external senses. This is because, while the external senses convey the objects that the animal recognizes to be beneficial

or harmful (i.e. the physical presence of a wolf or of a plant), they do not produce the evaluation that such objects have a relationship of benefit or harm to the animal. For such an *intentio insensatae*, a higher faculty is required; nevertheless, since the evaluation produced by this *intentio* pertains to particular sensory objects, the scholastics attributed it to the power of a sense – namely, the estimative sense.

In the human being (or *rational* animal), the estimative sense, according to the scholastics, takes on an additional power; it is thus called not the estimative power (*vis aestimativa*) but the cogitative power (*vis cogitativa*). Significantly, it is in the ontological gap between these two powers that the essential distinction between animal and human psychology begins to reveal itself. As Aquinas writes,

> [F]or the apprehension of intentions which are not received through the senses, the 'estimative' power is appointed: and for the preservation thereof, the 'memorative' power, which is a storehouse of such-like intentions… Now, we must observe that as to sensible forms there is no difference between man and other animals; for they are similarly immuted by the extrinsic sensible. But there is a difference as to the above intentions: for other animals perceive these intentions only by some natural instinct, while man perceives them by means of coalition of ideas. Therefore the power by which in other animals is called the natural estimative, in man is called the 'cogitative,' which by some sort of collation discovers these intentions. Wherefore it is also called the 'particular reason'…for it compares individual intentions, just as the intellectual reason compares universal intentions.[28]

For Aquinas, then, the psyches (or souls) of humans and animals are essentially the same with respect to the materiality of *intentiones sensatae*; they are essentially distinct, however, with respect to the immateriality of *intentiones insensatae*. That is, while the estimative sense in the non-rational animal adds an immaterial judgment of value to the animal's material perceptions, such a judgment is instinctual; the sheep recognizes the wolf as threatening because of a natural estimation reflective of an "innate cognitive structure."[29] This is not the case with the rational animal, because the power to judge the useful and the harmful in particular instances is derived, in the human psyche, from the power of collation. United with the universal apprehension of the intellect – the specific difference of the rational animal – *collatio* compares "individual intentions" so as to perceive each individual sensory thing, not primarily as something to be sought, avoided, or ignored, but as something to be evaluated in light of the "common nature" or universal essence it embodies. As Peghaire writes, "The ewe knows her lamb as something concrete, individualized, but not inasmuch as it is this individual possessing the nature of a sheep; she knows it only in that she knows, without being conscious of it, that she is impelled to give her milk to

this white, baa-ing, gamboling object."[30] The human cogitative power, on the other hand, "knows Peter as something concrete in which human nature is realized, and this oak table as something concrete in which is realized the nature of that tree which we call an oak. This is something which the estimative does not do."[31]

Such a distinction is vital with regard to the cogitative power's judgment of what is useful, harmful, or indifferent to the human animal's existence, since, unlike the estimative whose movement of the animal into act is automatic, the human impulse to act driven by cogitative judgment – while still largely unconscious and immediate – is nevertheless reflected upon and, to varying degrees, shaped by the "command" of intellectual judgment. Thus, as Aquinas writes:

> Impulse to action is in irrational animals otherwise than in man. For the impulse of man to action arises from the directing reason; wherefore his impulse is one of command. On the other hand, the impulse of the irrational animal arises from natural instinct; because as soon as they apprehend the fitting or the unfitting, their appetite is moved naturally to pursue or to avoid. Wherefore they are directed by another to act; and they themselves do not direct themselves to act. Consequently in them is impulse but not command.[32]

The holistic structure of the cogitative sense as an internal bridge between the intellectual understanding of abstract universals and the sensory perception of material singulars is instrumental to Arnold's psychological theory. For, as Peghaire emphasizes, the habitual estimations performed by the cogitative sense convey an element of the human personality that is altogether missed by modern psychology's focus on instinct, the latter of which "implies no consciousness of an end to be reached, or even, in many cases, of the means or movements useful to reach the end; the cogitative, on the contrary, is essentially founded on consciousness."[33] Accordingly, linking the functions of the cogitative power to a neurological "estimative" or "appraisal system,"[34] Arnold accounts for the "freedom, responsibility, and purpose," which in her earlier work she insisted to be self-evident attributes of the human personality, by grounding human emotion and the actions that flow from it, not in physiological drives, but in "intuitive appraisals" of the objects of human experience. For Arnold, much of the modern psychology of emotion[35] directly identifies the sense perception of an object with physiological changes of attraction or revulsion; what such theories miss, both in animal and human psychology, is that between the simple awareness of the object (enabled, according to the scholastics, by the *sensus communis*) and the emotion that spurs action in relation to the object is an *estimate* or *appraisal* of the object as 'good' or 'bad' for the sensing subject. Arnold thus writes,

> [E]motion is an experience in which the person appraises the object as affecting himself. Such an appraisal of the object results in a felt attraction or aversion, and eventually (if no other motive interferes) in approach or avoidance. Perception is completed by an intuitive appraisal that arouses emotion. Hence the sequence perception-appraisal-emotion comes before the sequence emotion-expression-action, which so far has been emphasized almost exclusively in psychological theory. It is the sequence perception-appraisal-emotion that alone will explain the conditions necessary for arousing emotion.[36]

In keeping with the scholastic definition of the cogitative power as an internal *sensory* faculty, Arnold notes that the habit of making appraisals necessarily precedes deliberate reflection: "[S]uch sense judgments are direct, immediate, nonreflective, nonintellectual, automatic, 'instinctive,' 'intuitive.'"[37] With regard to this immediate and preconscious character – combined with the power of "collation" – Arnold remarks that when certain objects and situations are appraised in a certain way, they become categorized as such, causing the expectation that other objects and situations exhibiting the same "nature" will evoke the past appraisal. Traumatic situations, for this reason, can often interfere with a person's long-term ability to make realistic estimates.[38]

However, following the scholastic notion that the collative sense power of the cogitative not only *shapes* but is also *shaped by* habits of universal apprehension, Arnold notes that, while the acts of intuitive appraisals are immediate and nonreflective, the character of such appraisals (in older children and adults) are mediated and cultivated to varying degrees by the distinct human power to adopt "rational motives." This entails choosing those objects which conform to one's pursuit of values, such that the objects appraised as "good" do not reduce to – and may even conflict with – the satisfaction of one's momentary impulses. It is due to such "self-determination"[39] that human appraising often consists, for Arnold, in the willful struggle to correct habits of appraisal that stand in the way of consciously determined goals. In these characteristically human situations, Arnold advises, "To break an emotional habit, a habit of acting from rational motives must be substituted. Every action decided on after reflection on rational grounds leaves an inclination to a similar action, just as every action that indulges emotion leaves an inclination to do the same next time. There is a habit of acting according to what is held right, and one of acting contrary to it – what used to be called virtue and vice."[40]

As Arnold's reference to the metaphysics of "virtue and vice" suggests, the kind of "rational motive" she has in mind starkly contrasts with the "rationality," which, grounded in the metaphysics of "physical naturalism" and seen, therefore, as no more than the evolutionary product of biological drives, is tasked with integrating the human personality into the purportedly "self-regulating" efficiency of social structures. Taking the Aristotelian-Thomist view that the human personality is an animating soul comprised of hierarchically arranged, though holistically operative, powers, Arnold asserts that rationality

involves the deliberate ordering of one's human faculties – both material and immaterial – according to their natural dispositions:

> Rational motives do not develop 'out of' instinctive or emotional motives, nor do physiological appetites or emotions develop 'out of' sensory or motor functions. The individual functions tend to action as soon as the opportunity is given, but they can be combined and ordered…The point to be remembered is that instinct as we understand it is an impulse and urge *to ordered activity*, achieving a naturally determined goal…Instinct directs the *ordering* of action sequences, which in human beings has to be implemented by reflective choice and deliberation.[41]

In the second volume of *Emotion and Personality*, Arnold draws on Gasson's notion of the "self-ideal" to address what it might mean for the human person to cultivate one's natural inclination for psychological order. As the ultimate object specifying one's habits of appraising, the self-ideal, for Arnold, originally takes shape in the child's appraisal of qualities in her parents, siblings, and others as "admirable" and worthy of imitation. As the child matures into adulthood, the self-ideal develops according to the individual's reflective adoption of values and long-term goals, which are themselves, Arnold notes, largely informed by the culture to which the individual belongs. It is here that Arnold is again confronted with the 'meaning crisis' of modern psychology, noting that the formation of a self-ideal built on the theistic tradition of "loving God and doing His will…goes far beyond the self-ideal that could be established on the basis of self-interest and social cooperation."[42] Nevertheless, it is precisely the latter condition that Arnold sees in the reigning religion of "scientism": "There was a time when man hoped that he was 'a little lower than the angels.' But in recent decades 'scientific' debunkers have instilled in him the conviction that he is a creature of lust, greed, and rapacity; worse than that, that he is a machine as blindly determined as the computer or the guided missile."[43]

In Arnold's reference to subjectivist and objectivist models of the human personality generated by the modern scientific and technological enterprise, we are reminded of what I earlier identified as the "meaning crisis" of electric technology. Following McLuhan's notion of electric discarnation as it applies to Aristotelian hylomorphism, I characterized this crisis as the collapse of the formal *actuality* of one's perceptions into the undifferentiated *potentialities* of biological and technical materiality. As the very principle that in-forms the human body by giving it the intellectual power to realize proportions of existential structure as "natural law," the human soul is, in the electrically discarnate state, obsolescent.

While, as I briefly noted, McLuhan's response to this crisis was to implicitly retrieve the Thomist conception of the human soul so as to intensify perception of the various forms of media environments as they impinge upon the human form, Arnold's response to this crisis was to explicitly update the scholastic

doctrine of the operations of the human soul so as to reveal the explanatory limitations of the modern conception of the human person, while strengthening the scholastic doctrine with the findings of neurological science. However, while Arnold's retrieval of Thomistic psychology may contribute a level of precision that is lacking in McLuhan's frequent recourse to Thomistic modes of sense-making, McLuhan's study of technological environments as engendering the very psychological "ground" of cultural attitudes allows us to evaluate Arnold's lifelong rebellion against technocratic materialism in terms of its relevance to the cultural attitudes being formed by the *contemporary* media environment. This is important since, in contrast to Jordan Peterson and John Vervaeke, both of whose response to the "meaning crisis" is compromised, I argued, by a fundamental allegiance to "electric discarnation," the mutually strengthening relationship between the work of McLuhan and Arnold shows us, as I argue in the following section, that the discussions of the "meaning crisis" carried out on digital platforms can be profitably extended only by acknowledging that the attitudes formed by electric discarnation may now, in the context of the digital environment, be obsolete themselves.

PSYCHOLOGY BEYOND TECHNOCRACY

One of the most exhilarating qualities of McLuhan's work is his tour-de-force style of observation that links forms of technical mediation with forms of human behaviour; thus, while the medium of print, as McLuhan famously claimed, enhances the qualities of "detachment and noninvolvement – the power to act without reacting,"[44] the involving and decentralized nature of electric media allowed a number of new behaviors to flourish such as, in the early twentieth century, the idiom of jazz, which "comes from the French *jaser*, to chatter" and disrupts "the homogenous and repetitive rhythms of the smooth waltz"[45] indicative of print media attitudes. Noting the deep transformation of habits and values resulting from the technological reorganization of cultural patterns, McLuhan writes,

> The fact of acceptance of a new phrase, or a speech form, or a dance rhythm is already direct evidence of some actual development to which it is significantly related. Take, for example, the shift of English into an interrogative mood, since the arrival of 'How about that?' Nothing could induce people to begin suddenly to use such a phrase over and over, unless there were some new stress, rhythm, or nuance in interpersonal relations that gave it relevance.[46]

Considering such remarks in the context of Arnold's work, it is not difficult to see that the attention McLuhan gives to the distinct patterns of human personality engendered by habitual engagement with media objects is founded

on the cogitative activity of *appraisal*. That is, Arnold accounts for the structure of human attitudes by pointing to habits of appraising the objects of experience as good or bad for oneself – habits originally founded, to a greater or lesser degree, on the "objects" of one's parents and cultural practices as constitutive of one's "self-ideal." In McLuhan's reference to the "acceptance" of a new cultural object as "relevant" and worthy of being used "over and over," we are clearly in the domain of Arnold's "intuitive appraisals" forming habitual actions and preferences. Nevertheless, for McLuhan, the self-ideal governing such appraisals is grounded in a psychological activity that is, structurally, more fundamental than the deep-seated desire to imitate one's parents and cultural role-models; what Arnold calls the "self-ideal" is, for McLuhan, the very extension of the human body and psyche into the environments constituted by technological objects, the latter of which, in providing the structural model for all human relating and communicating, necessarily remake the human personality according to the immediate appraisal of their pattern of effects as "good."

McLuhan explains this subliminal attraction to new forms of mediation by applying Thomist aesthetics to modern physiology. Thus, McLuhan's famous theory of "sense-ratios," whereby each new technology alters the balance of one's senses by amplifying a particular sense, is grounded in Aquinas' doctrine that "there is a ratio or rationality in the senses themselves."[47] Such rationality, however, is not the kind of deliberate rationality evoked by Arnold as the means of training one's habits of appraisal. Instead, McLuhan notes, the sense-ratios effected by new technological extensions are, traditionally, *not* subject to conscious reflection, since, in order to maintain psychic equilibrium in the context of societal change and acceleration, each technological extension serves as an "amputation" of the faculty or sense of the human person subject to the most "pressure" and "irritation." It is this "autoamputation" that generates the "narcotic" condition, which McLuhan identifies with the mythological Narcissus. In other words, just as Narcissus fell in love with his own image by failing to recognize it as his own, the enthusiastic acceptance (or positive "appraisal") of a new technological extension, and of the new ratios of sense-making it creates, depends on *not recognizing* such an extension as a violent "amputation" of one's being.[48]

At the same time, however, just as Arnold appeals to conscious deliberation or "reflective appraisals" as the means of evaluating and, if necessary, correcting one's habitual appraisals, McLuhan asserts that the technological "discontinuities of present experience…demand…sensitive inspection and appraisal," and that through "adequate *perception* of situations,"[49] we may gain a measure of "freedom and release from the ordinary trance and numbness imposed by [media] on our senses."[50] Interestingly, for McLuhan, it is precisely this deliberative awareness of media forms that is both required by, and, to a degree, fostered by the ecological nature of electric media: "Now, in the electric age, the very instantaneous nature of co-existence among our technological instruments has created a crisis quite new in human history. Our extended faculties and senses now constitute a single field of experience which demands

that they become collectively conscious. Our technologies, like our private senses, now demand an interplay and ratio that makes *rational* co-existence possible."[51] Fortunately, McLuhan notes, the pursuit of interplay of extended human senses is characteristic of the attitudes fostered by electric media, since, due to electric simultaneity, "specialized segments of attention have shifted to total field" and "this integral idea of structure and configuration has become so prevalent that educational theory has taken up the matter."[52]

Crucially, however, it is just this 'field' approach to human behavior and meaning that I have already critiqued in the psychological theories of Peterson, whose *subjectivist* approach seeks to identify the archetypal biological structures governing the 'collective unconscious', and of Vervaeke, whose *objectivist* approach seeks to identify the conditions of systemic variables from which new orders of human behavior emerge. Due to the very metaphysical *blending* of the human form with the materiality of the world, such approaches, I argued, reflect what McLuhan characterized as the discarnate condition of electric culture, according to which, through lack of formal differentiation, the human body no longer appears as being in-formed by the substance of an embodied intellectual 'soul'. In contrast, if McLuhan's theory of media effects depends on the function of appraisal, and if, as we earlier saw, both immediate and reflective appraisals depend on the *immaterial* action of the internal senses in concert with the external senses and the intellect, then the "sensitive inspection" of media forms according to their power to alter the balance of human faculties necessarily requires a human disposition that appreciates the differentiating powers of the human soul. Particularly, recognition of the distinct social and psychic order (or *ratio*) implicated in any technological extension requires the cogitative function of "collation," according to which one perceives material things under a common essence. It is this collative power to apprehend the universal in the particular that De Hann credits as generating "aspectual percepts" and "cogitative sortals," which become the psychological habits of appraising sensory objects (*intentiones sensatae*) as possessing distinct ratios of attributes (*intentiones insensatae*) specifying actions and affects.[53]

Importantly, therefore, although McLuhan seems to identify the "adequate perception of situations" required for understanding media with the psychic attitudes engendered by electric media, he also characterizes these attitudes as having qualities that are catastrophic for any "adequate perception" grounded in the external and, particularly, *internal* human senses. While contradictions and ambiguities certainly, and even wittingly, abound in McLuhan's corpus, the gravity of this particular ambiguity – especially with regard to the "meaning crisis" of electric technology – merits resolution. In the next few paragraphs, I will briefly suggest that situating Arnold's discussion of the internal senses in relation not only to the electric media environment but also to the digital media environment clarifies how the psychology of appraisal – while obscured by *electric* media – may be one of the human attitudes enhanced by *digital* media. We may, in this way, see that, while much of the online discussion of the "meaning crisis" centres on amplifying the very 'discarnate' attitudes produced

by this crisis, the motivation for such discussion may be evidence of an important shift in human attitudes, which, in order to properly address the meaning crisis, should be identified and fostered.

In her final work *Memory and The Brain*, Arnold investigates the internal senses in a particularly rigorous fashion. Developing her earlier theory, Arnold details how cogitative appraisal affects the entire disposition of the human psyche including, not only emotion, but also habits of attention, bodily movement and recognition. Importantly, all these habits involve the function of memory, since appraisals of present or future situations depend upon one's appraisals of similar situations from the past. This intimate link between appraisal and memory is crucial to the scholastic doctrine of the internal senses; for, as the fourth internal sense in the Thomist system, "the memorative power" retains the appraisals of the cogitative sense, just as the internal sense of imagination retains the sensory representations of the sensus communis. Thus, just as the first two internal senses of the common sense and imagination perceive the data of the five external senses (which are represented as internal images or "phantasms"), the second two internal senses of cogitation and memory perceive the categorial aspects in terms of which any given phantasmal representation becomes meaningful for the human subject and, thus, susceptible to intellective deliberation.

As Arnold notes, however, the imaginative sense does not only retain the images generated by the sensus communis, but also (in line with the modern connotation) "imagines" sensory representations in ways that do not conform to one's original perception of them. Thus, comparing the imaginative and memorative senses, Arnold writes, "The difference between recall and imagination is that recall is constrained to the reproduction of the original experience in its temporal sequence and spatial context while imagination is free to roam and can recombine such memories regardless of time, place, or logical context."[54] Applying McLuhan's notion of "sense-ratios" to the internal senses, we can see that the discarnate experience generated by the media of telephone, radio, and television, is predicated on the amplification of this power of imagination, since, as we saw, electric transmission extends the human body beyond the formal specification of "its temporal sequence and spatial context." Intensified by video technologies, this condition caused McLuhan to observe that "the mind, as figure, sinks back into ground and drifts somewhere between dream and fantasy."

However, if we consider the structure of digital technology, we find that, while computer networks electromagnetically extend human activity across space, they do so by numerically storing data and instructions in precise memory locations (or 'addresses'), operating upon them in step-by-step procedures specified by a logical circuitry of 'yes-no' decisions, and returning them to memory for exact preservation. Thus, while merely electric media devices store, display, and transmit audio and video signals, digital media devices generate and retain electrically embodied patterns of categorial judgments. Relating this distinction to the internal senses, the electric

production and retaining of signals based on external sensory data (*intentiones sensatae*) may be seen to extend the powers of the sensus communis and imagination, while the digital production and retaining of signals based on immaterial judgments (*intentiones insensatae*) may be seen to extend the powers of cogitation and memory.

If the contemporary meaning crisis is rooted in the sense-ratio effected by electric technology, whereby imagination recombines one's internal impressions beyond their formal senses produced by one's cogitation and preserved in one's memory, then the sense-ratio effected by digital technology, whereby it is precisely one's cogitation and memory that are extended, may provide a remedy. In other words, just as McLuhan and Arnold responded to the meaning crisis by recovering the human person's inner form or "soul", according to which the world and the things in it are appraised as meaningful, the digital extension of cogitation and memory may already be recovering an awareness of this form, prompting the very attitudes intent on solving the meaning crisis in the first place. While many of these attitudes remain unaware of their lingering yet powerful ties to the psychology of the electric environment, it is through a recovered and, even, intensified awareness of human appraisal that the relationship between technological form and human form can be perceived both in its services and disservices.

Notes

1. Jean M. Twenge, *iGen: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy--and Completely Unprepared for Adulthood--and What That Means for the Rest of Us* (New York: Simon & Schuster, 2017).

2. Stephen Hawkins, Daniel Yudkin, Míriam Juan-Torres and Tim Dixon, *Hidden Tribes: A Study of America's Polarized Landscape* (New York: More in Common, 2018).

3. Andrew Sweeny, "An Intellectual Deep Web?", *Medium* (blog), June 27, 2018, https://medium.com/rebel-wisdom/an-intellectual-deep-web-aa7e60ef942a;

Jakub Simek, "Intellectual Deep Web and Deep Code need Mimetic Theory", *Medium* (blog), July 21, 2019, https://medium.com/meta-metta/intellectual-deep-web-and-deep-code-need-mimetic-theory-a5026d566568.

4. John Vervaeke, Christopher Mastropietro, and Filip Miscevic, *Zombies in Western Culture: a Twenty-First Century Crisis* (Cambridge, UK: Open Book Publishers, 2017).

Vervaeke traces the contemporary meaning crisis – which he characterizes as the loss of transcendence and social cohesion – to the advent of nominalism from the late middle ages to the scientific revolution. Through positing an unsurpassable metaphysical and epistemological barrier between the human intellect and the sensorial world, philosophical (William of Ockham), religious (Martin Luther) and scientific (Galileo) nominalism, Vervaeke notes, obsolesced faith in an intrinsic cosmological order integrating human and world, thereby eroding the "ecology of worldview" achieved by the medieval synthesis of Greek philosophy and Christian dogma.

5. Francisco J. Varela, Evan Thompson and Eleanor Rosch, *The Embodied Mind: Cognitive Science and Human Experience*, (Cambridge: The MIT Press, 1992).

6. John Vervaeke, "The View from Above: A Transformation of Perspectival and Participatory Knowing" (speech, Toronto, September 18, 2019) *Modern Stoicism*, https://modernstoicism.com/the-view-from-above-a-transformation-of-perspectival-and-participatory-knowing-by-john-vervaeke/;

John Vervaeke, Timothy P. Lillicrap, and Blake A. Richards, "Relevance Realization and the Emerging Framework in Cognitive Science," *Journal of Logic and Computation*, 22, no. 1 (2012): 79-99, https://doi.org/10.1093/logcom/exp067.

According to Vervaeke's model, the psyche establishes meaning or performs "relevance realization" through the contextuality of skills (procedural knowing), awareness (perspectival knowing) and co-identifications (participatory knowing), which "bootstrap" themselves into being through the embodied mind's systemic attempt to balance competing adaptive strategies of information processing.

7. Jordan B. Peterson, *12 Rules for Life: An Antidote to Chaos* (Toronto: Random House Canada, 2018).

On p. 195, Peterson writes, "Now, an idea is not the same thing as a fact. A fact is something that is dead, in and of itself. It has no consciousness, no will to power, no motivation, no action. There are billions of dead facts. The internet is a graveyard of dead facts. But an idea that grips a person is alive. It wants to express itself, to live in the world. It is for this reason that the depth psychologists—Freud and Jung paramount among them—insisted that the human psyche was a battleground for ideas. An idea has an aim. It wants something. It posits a value structure. An idea believes that what it is aiming for is better than what it has now. It reduces the world to those things that aid or impede its realization, and it reduces everything else to irrelevance. An idea defines figure against ground. An idea is a personality, not a fact. When it manifests itself within a person, it has a strong proclivity to make of that person its avatar: to impel that person to act it out."

8. Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962).

9. Marshall McLuhan. "The Rise and Fall of Nature," *The Journal of Communication*, 27, no. 4 (1977): 80.

10. Vervaeke et. al., *Zombies in Western Culture,* 73-76.

11. The Greek terminology used by Aristotle is *psuchē* (soul) possessing the powers of *noēisis* (understanding) and *dianoia* (thinking things through). See Joe Sachs, introduction to *Aristotle's On the Soul and On Memory and Recollection* (Sante Fe: Green Lion Press, 2004), 1-42.

12. Eric McLuhan, *The Sensus Communis, Synesthesia, and the Soul: An Odyssey* (Toronto: BPS Books, 2015).

13. Marshall McLuhan and Bruce R. Powers, *The Global Village: Transformations in World Life and Media in the 21st Century* (New York: Oxford University Press, 1989), 97.

14. McLuhan and Powers, 129.

15. John Vervaeke, "Ep. 30 – Awakening from the Meaning Crisis – Relevance Realization Meets Dynamical Systems Theory," YouTube, August 9, 2019, 58:18, https://www.youtube.com/watch?v=Wex12GhUFqE&t=2065s.

The universal conformity between the human intellect and being central to Aristotelian cosmology becomes, for Vervaeke, the ongoing achievement between organisms and environments of "fittedness," the latter of which has no intrinsic essence or teleological design: "There is no essence to fittedness…What Darwin realizes… [is that] he needed a theory about how…an organism is fitted, how it is constantly being designed, redefined by a dynamic process. Fittedness is always redefining itself,

reconstituting itself, it is something that is constantly within a process of self-organization, because there is no essence, no final design on fittedness."

16. Jordan Peterson, "2016/12/31: A New Years Letter to the World," YouTube, 21:06, https://www.youtube.com/watch?v=YnEFt20qe0o&t=894s.

Peterson asserts, "It is the consciousness of the individual which transforms the chaos of potential into habitable cosmos, as the greatest origin stories repeatedly insist…It is that consciousness, not the objective material substrate of Being, which should be regarded as the ultimate reality."

17. An informative overview of some of McLuhan's commentators' misreadings of his work can be found in Robert Macmillan, "Marshall McLuhan at the Mercy of His Commentators," *Philosophy of the Social Sciences*, 22, no. 4 (1992): 475-491. https://doi.org/10.1177/004839319202200404.

18. Magda Arnold, "Basic Assumptions in Psychology," in *The Human Person: An Approach to an Integral Theory of Personality,* eds. Magda Arnold and John A. Gasson (New York: The Ronald Press Company, 1954), 11.

19. Arnold, 11.

20. Magda Arnold, "The Theory of Psychotherapy," in *The Human Person*, 508.

21. Arnold, 510.

22. Magda Arnold, *Emotion and Personality*, 2 vols. (New York: Columbia University Press, 1960).

23. Magda Arnold, *Memory and the Brain* (Hillsdale: Lawrence Erlbaum Associates, 1984).

24. For a discussion of Arnold's foundational influence on psychological research on the emotions see Rainer Reisenzein, "Arnold's theory of emotion in historical perspective," *Cognition and Emotion*, 20, no. 7 (2006): 920-951. https://doi.org/10.1080/02699930600616445.

25. Arnold, *Emotion and Personality*, vol. 1, 73. "There must be an estimate that one kind of functioning is good, that is, favorable for the organism, another unfavorable, before the one can be felt as pleasant, the other as unpleasant…The traditional philosophy has called this sense-like process the 'estimative sense' and has considered it one of the internal senses, together with memory and imagination."

26. For Arnold's discussion of the sensus communis in neurological terms see Magda Arnold, "The Internal Senses – Functions or Powers?: Part II," *The Thomist: A Speculative Quarterly Review*, 26, no. 1 (1963), 16. https://doi.org/10.1353/tho.1963.0033

Arnold writes "the sensorium of the sensus communis seems to be the feltwork of cortical connections between the afferent and the efferent layers, both in the sensory and the adjoining association cortex. Though the sensus communis is one power, it is specified by its acts; and its acts are the intentional representations of the activity and content of different sense modalities. For this reason, we should not be surprised to find that the visual cortex is necessary for perceiving visual objects, the auditory cortex for perceiving direction and pattern of sound, the cortex of the somatosensory area for perceiving an object by touch, etc. The unity of the sensus communis is preserved by the connection of every cortical sensory area with every other such area, both via short and long association fibers. The primary sensory cortex seems to mediate the perception of objects, but the adjoining association cortex seems to make possible the retention of sense impressions. There are relays from the sensory thalamic nuclei distributed both to the primary sensory areas and to the adjoining association areas. For this reason, we are inclined to postulate two functions of the sensus communis: one

of constructing its intentional image (mediated by the primary areas), the other that of retaining it (mediated by the association areas)."

27. Julien Peghaire, "A Forgotten Sense: The Cogitative According to St. Thomas Aquinas," *The Modern Schoolmen*, 20, no. 3 (1943), 124. https://doi.org/10.5840/schoolman194320358.

28. Thomas Aquinas, *Summa Theologica*, trans. Fathers of the English Dominican Province (1920), I.78.4. https://www.newadvent.org/summa/1078.htm#article4.

29. Anthony J. Lisska, *Aquinas's Theory of Perception: An Analytic Reconstruction* (Oxford: Oxford University Press, 2016), 241. https://doi.org/10.1093/acprof:oso/9780198777908.001.0001

30. Peghaire, "A Forgotten Sense," 139.

31. Peghaire, 140.

32. Aquinas, I-II.17.2 ad 3.

33. Julien Peghaire, "A Forgotten Sense: The Cogitative According to St. Thomas Aquinas," *The Modern Schoolmen*, 20, no. 4 (1943), 228. https://doi.org/10.5840/schoolman194320448.

34. See Arnold, *Memory and the Brain*, 127. "I have argued…[that]…appraisals are mediated by a special neural system that receives relays from sensory and motor systems. It includes the afferent connections from sensory receptors to brain stem reticular formation, intralaminar and midline thalamic nuclei, and the limbic cortex. I have proposed to call this system the estimative system or appraisal system because it mediates appraisals or estimates – just as the sensory system is so called because it mediates sensations. The appraisal system, then, functions on three levels; the peripheral-spinal, subcortical, and cortical level."

35. For a useful summary of Arnold's discussion see Elissa N. Rodkey, "Magda Arnold and the Human Person: A Mid-Century Case Study on the Relationship Between Psychology and Religion," *YorkSpace Institutional Repository,* 2015, 282. http://hdl.handle.net/10315/30691.

Rodkey writes, "One can contrast [Arnold's] line of thinking with previous theorizing as Arnold reviews Charles Darwin, William James, Carl Lange, John Dewey, William MacDougall and Sigmund Freud. These theorists tend to frame emotions as physiological, either as the result of bodily changes (James, Lange, and Dewey, i.e. the James-Lange theory) or as instincts (Darwin, MacDougall, and Freud)."

36. Arnold, *Emotion and Personality*, vol. 1, 182.

37. Arnold, 175.

38. See Arnold, 185. Referring to a child's experience of being bitten by a dog, Arnold writes, "Intense emotion is so harmful in early childhood because the expectation it creates cannot be easily corrected by a rational estimate. For all the child knows, the dog that approaches him is a ravening beast."

39. Arnold, 245.

40. Arnold, 191.

41. Arnold, 246.

42. Arnold, *Emotion and Personality*, vol. 2, 283.

43. Arnold, 282.

44. Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: The Penguin Group, 1964), 157.

45. McLuhan, 245.

46. McLuhan, 242.

47. McLuhan, *The Gutenberg Galaxy*, 107. McLuhan quotes Aquinas' Summa Theologica I.5.4. ad. 1: "The senses delight in things duly proportioned as in something akin to them; for, the sense, too, is a kind of reason as is every cognitive power"
48. McLuhan, *Understanding Media*, 51-56.
49. McLuhan, 75, emphasis in original.
50. McLuhan, 63.
51. McLuhan, *Gutenberg Galaxy*, 5, emphasis in original.
52. McLuhan, *Understanding Media*, 28.
53. Daniel D. De Haan, "Perception and the Vis Cogitativa: A Thomistic Analysis of Aspectual, Actional, and Affectional Percepts," *American Catholic Philosophical Quarterly*, 88, no. 3, 419. https://doi.org/10.5840/acpq20147323.
54. Arnold, *Memory and the Brain*, 54.

References

Aquinas, Thomas. *Summa Theologica*. Translated by the Fathers of the English Dominican Province. 1920. https://www.newadvent.org/summa/1078.htm#article4.

Arnold, Magda. "Basic Assumptions in Psychology." In *The Human Person: An Approach to an Integral Theory of Personality,* edited by Magda Arnold and John A. Gasson, 3-48. New York: The Ronald Press Company, 1954.

Arnold, Magda. "The Theory of Psychotherapy," In *The Human Person: An Approach to an Integral Theory of Personality,* edited by Magda Arnold and John A. Gasson, 493-538. New York: The Ronald Press Company, 1954.

Arnold, Magda. *Emotion and Personality*, 2 vols. New York: Columbia University Press, 1960.

Arnold, Magda. "The Internal Senses – Functions or Powers?: Part II." *The Thomist: A Speculative Quarterly Review* 26, no. 1 (1963): 15-34. https://doi.org/10.1353/tho.1963.0033.

Arnold, Magda. *Memory and the Brain*. Hillsdale: Lawrence Erlbaum Associates, 1984.

De Haan, Daniel D. "Perception and the Vis Cogitativa: A Thomistic Analysis of Aspectual, Actional, and Affectional Percepts." *American Catholic Philosophical Quarterly* 88, no. 3, 397-437. https://doi.org/10.5840/acpq20147323.

Hawkins, Stephen, Daniel Yudkin, Míriam Juan-Torres and Tim Dixon. *Hidden Tribes: A Study of America's Polarized Landscape*. New York: More in Common, 2018.

Lisska, Anthony J. *Aquinas's Theory of Perception: An Analytic Reconstruction*. Oxford: Oxford University Press, 2016. https://doi.org/10.1093/acprof:oso/9780198777908.001.0001

Macmillan, Robert. "Marshall McLuhan at the Mercy of His Commentators." *Philosophy of the Social Sciences* 22, no. 4 (1992): 475-491. https://doi.org/10.1177/004839319202200404.

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

McLuhan, Marshall. *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto: University of Toronto Press, 1962.

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

McLuhan, Marshall. "The Rise and Fall of Nature," *The Journal of Communication*, 27, no. 4 (1977): 80-81. https://doi.org/10.1111/j.1460-2466.1977.tb01859.x.

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

Peghaire, Julien. "A Forgotten Sense: The Cogitative According to St. Thomas Aquinas." *The Modern Schoolmen* 20, no. 3 (1943), 123-140. https://doi.org/10.5840/schoolman194320358.

Peghaire, Julien. "A Forgotten Sense: The Cogitative According to St. Thomas Aquinas." *The Modern Schoolmen* 20, no. 4 (1943), 210-229. https://doi.org/10.5840/schoolman194320448.

Peterson, Jordan B. *12 Rules for Life: An Antidote to Chaos*. Toronto: Random House Canada, 2018.

Peterson, Jordan. "2016/12/31: A New Years Letter to the World." YouTube. Video, 21:06. https://www.youtube.com/watch?v=YnEFt20qe0o&t=894s.

Reisenzein, Rainer "Arnold's theory of emotion in historical perspective." *Cognition and Emotion* 20, no. 7 (2006): 920-951. https://doi.org/10.1080/02699930600616445.

Rodkey, Elissa N. “Magda Arnold and the Human Person: A Mid-Century Case Study on the Relationship Between Psychology and Religion,” *YorkSpace Institutional Repository,* 2015. http://hdl.handle.net/10315/30691.

Sachs, Joe. Introduction to *Aristotle's On the Soul and On Memory and Recollection*, 1-42. Sante Fe: Green Lion Press, 2004.

Twenge, Jean M. *iGen: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy--and Completely Unprepared for Adulthood--and What That Means for the Rest of Us*. New York: Simon & Schuster, 2017.

Varela, Francisco J., Evan Thompson and Eleanor Rosch. *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge: The MIT Press, 1992.

Vervaeke, John, Timothy P. Lillicrap, and Blake A. Richards. “Relevance Realization and the Emerging Framework in Cognitive Science.” *Journal of Logic and Computation* 22, no. 1 (2012): 79-99, https://doi.org/10.1093/logcom/exp067.

Vervaeke, John. “Ep. 30 – Awakening from the Meaning Crisis – Relevance Realization Meets Dynamical Systems Theory.” YouTube, August 9, 2019. Video, 58:18. https://www.youtube.com/watch?v=Wex12GhUFqE&t=2065s.

Vervaeke, John. “The View from Above: A Transformation of Perspectival and Participatory Knowing.” Speech, Toronto, September 18, 2019. Modern Stoicism, https://modernstoicism.com/the-view-from-above-a-transformation-of-perspectival-and-participatory-knowing-by-john-vervaeke/.

Vervaeke, John, Christopher Mastropietro, and Filip Miscevic. *Zombies in Western Culture: a Twenty-First Century Crisis*. Cambridge, UK: Open Book Publishers, 2017.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 49-68

THE MCLUHANS AND THE INNER SENSES

Peter Berkman
Center for the Study of Digital Life

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 technological revolutions, 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, that field 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 situated in different parts of the brain). Instead, Marshall's work treated media as altering the balance and ratio only among the five exterior senses: with particular media mainly tending toward either a visual or audile-tactile bias.

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.

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]

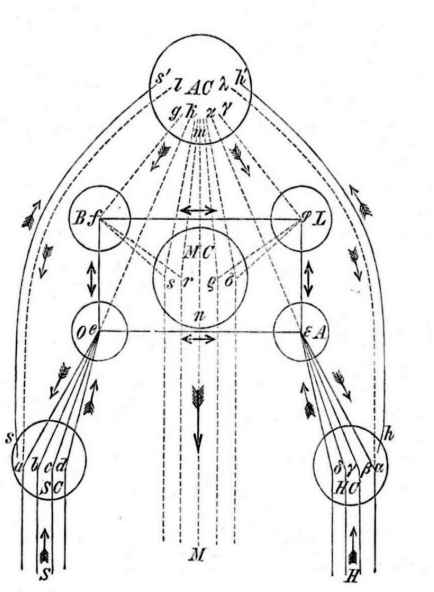


Fig. 105 Scheme of the hypothetical connections of the apperception center. *SC* sight center. *HC* hearing center. *S* central optic nerve fibers. *H* auditory nerve fibers. *A*, *O* sensory, *L*, *B* intermediary motor centers. *MC* direct motor center. *M* motor central fibers. *AC* Apperception Center. *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

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]

THOMIST MENTORS

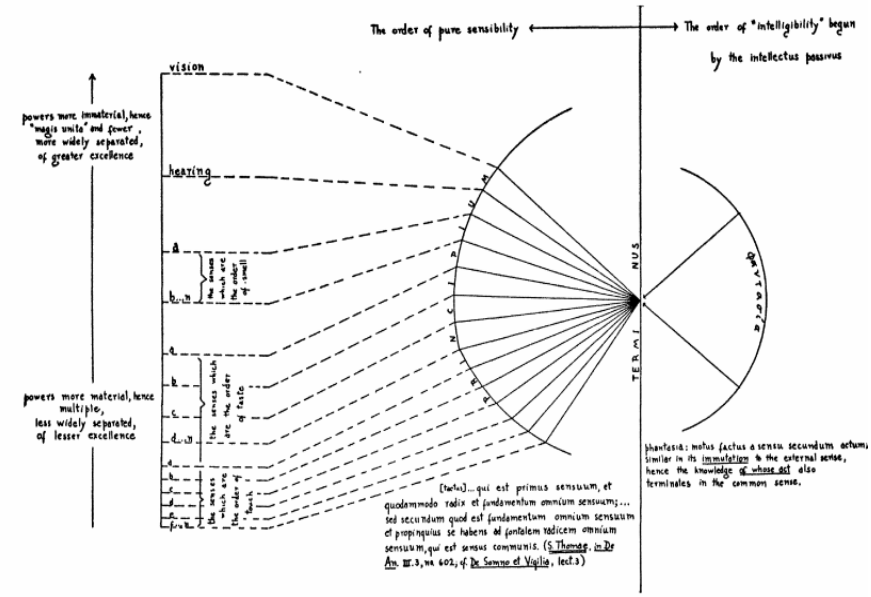
"*Now, the public for whom one acts or writes, is necessarily the formal cause, whether in philosophy or theology or in the arts. Does this fact not explain why there is no theory of communication in philosophy since Plato? The study of 'content', is it not the efficient cause?*"
- Marshall McLuhan to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

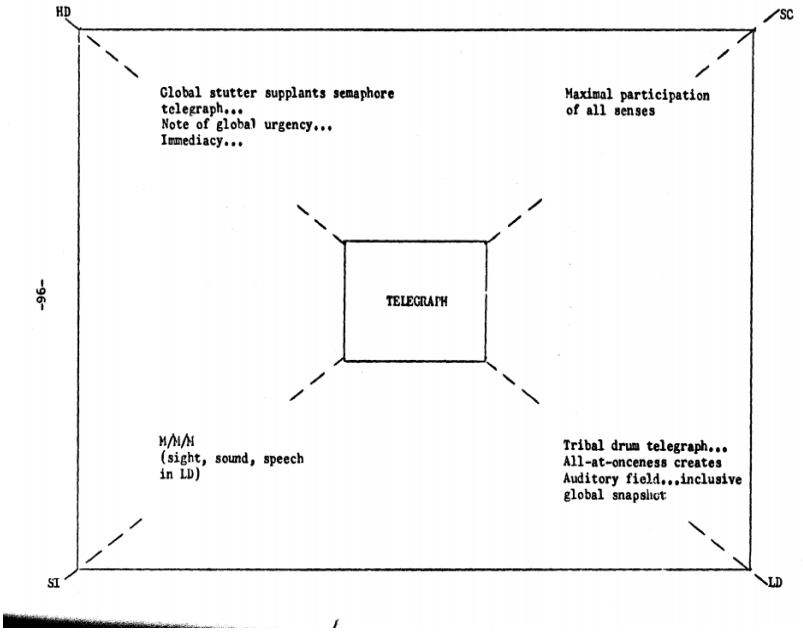
Muller-Thym helped Marshall to interpret Joyce as a faithful and even strict Thomist. Muller-Thym published an essay: *The Common Sense, Perfection of the Order of Pure Sensibility* which distinguishes this "common sense" - the internal sense responsible for the reception of all sensible forms - from 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]

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: The Making of Typographic Man* (1962), and *Understanding Media: The 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]



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.

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.* 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 (emphasis added).[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 and 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.[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.[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]

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.

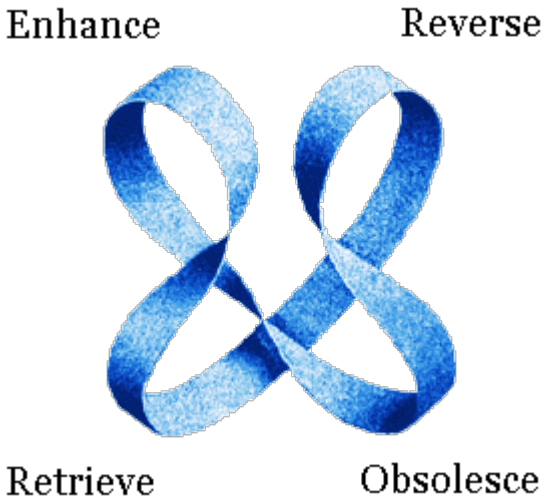
The wealth of discovery from accounting for the common sense's reception of sensible forms led Marshall to think in terms of a dichotomy of human sensibility. This, after all, appeared to be what Joyce had lifted from St. Thomas. When he began to pull on this thread, all of his discoveries pointed to 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]



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

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 common 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.

"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'" (Muller-Thym to Gilson, Jan 27 1956).

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).

References

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.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 69-110

A FORGOTTEN SENSE, THE COGITATIVE ACCORDING TO ST. THOMAS AQUINAS

Julien Peghaire
College Saint-Alexandre Limbour, Quebec

Originally Published in *The Modern Schoolmen 20*(3) March 1943: 123-140 and *20*(4) May 1943: 210-229.

Originally published in 1943, Peghaire's essay is an in-depth study of the vis cogitativa*, a sensory power which had been obscured for centuries by the physicalist bent of experimental psychology. Distinct from, although functioning in concert with, the other internal senses (sensus communis, imagination, and memory), the cogitative power, according to the doctrine of Thomas Aquinas, possesses a number of closely related roles in human perception. As an analog to the animal estimative power, the cogitative power (also called the "particular reason") apprehends what is useful and harmful in perceptual objects not merely through an inborn instinct but also through a comparison (*collatio*), informed by reason, of particular cognitive objects or "intentions." Accordingly, the cogitative power allows humans to perceive the concrete individual not only in terms of its immediate value or harm, but also in terms of its instantiation of a "common nature" or universal. It is this function of the cogitative to serve as a bridge between the particular data of the senses and the universal concepts of the intellect that allows the cogitative both to prepare the "phantasms" retained by the imagination to be intellectually apprehended as universals, and to conduct abstract understanding back down to its relationship and application to concrete singulars. Since the intellectual virtue of prudence depends upon the application of universal moral principles to concrete situations, the cogitative power, Peghaire notes, is vital to the exercise of this virtue, making the cogitative power key to practical human life.*

INTRODUCTION

The concept of psychology in vogue today is quite different from that which was in favor some two centuries and more ago. Modern psychologists are in search of psychical facts and seek for them with all the care and exactness that characterize the positive sciences. They frequently subject these facts to complex experiments and, with no consideration whatever for metaphysics, elaborate laws and theories in need of constant correction and completion.

The ancients also take facts and experience as their starting point, but only as a springboard to rise to a metaphysical explanation of the reality of the soul and its operations. Common problems are thus considered under different aspects; questions that were once discussed at great length are now neglected, not to say contemned, by the moderns, interested as they are in points of research whose value the ancients did not even suspect.

The study of the senses offers a striking example of this difference of view. The old psychology made a distinction between external and internal senses; it sought to learn the supra-sensible conditions of the former, their object and their connection with the soul; of the latter it strove to determine the number and to discover not so much their exterior manifestations as the intimate character of each and its part in the human act *par excellence,* the act of intellection. It spoke of *sensus communis,* and of the imaginative, cogitative and memorative faculties. Of the old internal senses modern psychology has kept, not the name, but some portion of the reality that was called *sensus communis,* which, in modern terminology, is sense consciousness. It discusses memory and imagination at great length, but completely ignores the cogitative, both in name and in fact.

For the last fifty years, this modern point of view has penetrated all the scholastic treatises published on psychology. In most of them there is some mention of the cogitative, but this is little more than a summary or transcription of St. Thomas' classic article *(S. T.,* I. 78. 4.). In some cases this text is supplemented with a few statements from John of St. Thomas. Many authors treat it in an appendix to the chapter on instinct[1] as conceived by the moderns.

All in all, it would seem that modern scholastic philosophers implicitly admit that the doctrine of the cogitative now has no more than an historic interest and that what details of it retain some value go to make up an integral part of the much broader study of instinct.

Precisely what is to be said of the *vis cogitativa?* What is its true and complete function in human cognition? Is it merely an antiquated hypothesis which modern psychology has left behind, or does it constitute a part of the everlasting psychic make-up of man? These are the questions to which we seek an answer in the course of these pages.

To achieve this aim we must undertake a thorough study of the question, a study which, as far as we know, has never been undertaken. Our study must first of all be historical, for it is only after explaining, in all its breadth and with all possible objectivity, the Thomistic concept of the cogitative sense that we will be enabled to pass judgment on the actual worth of this theory and thus know whether it belongs in a museum of antiques or deserves a place of honor in contemporary thought.

THE ESTIMATIVE FUNCTION

The Ancients begin their philosophizing with very simple facts of daily occurrence. The observation is made that the ewe flees from the wolf even before it has experienced the danger which threatens it, although it follows the dog which nevertheless bears a strong resemblance to the wolf; it recognizes its own lamb, but refuses to suckle another; it seeks a certain herb as a source of nourishment, but spurns a certain other though it has never tasted it. The wolf

does not attack its own whelp to devour it. The dove hides from the hawk or the falcon. When springtime comes the sparrow picks up a bit of straw with which to build its nest, but passes up a splinter of wood. Such is the comprehensive list of facts which are continually made use of as a foundation in the research problem which we are undertaking.[2] And St. Albert the Great, the scientific light of the middle ages, puts the whole matter in synthetic form when he says: "In general, every being endowed with sensation has a desire for the food which it needs for its nourishment."[3]

Of these facts some of them show us an attraction on the part of the animal for that which is proper to it, for that which is—whether the animal be conscious of it or not—a good, either for itself individually or for its species. The other facts display a tendency of the animal to draw away from what is dangerous, harmful, or a source of new evil for itself or for its species. We have here a first generalization which the ancients themselves expressed. How are we to explain this phenomenon of attraction and repulsion?

Saint Thomas calls attention to the fact that some previous experience does not furnish the explanation. "Ovis fugit lupum cujus inimicitiam numquam sensit."[4] But are we to explain the phenomenon by some element of pleasure or displeasure to sight, hearing, or smell? The ancients were not unaware of this possible solution. They readily admit that in some cases, though not in all, the attraction or repulsion is sufficiently explained by the pleasant or unpleasant impression received by one or more of the external senses: "Animal enim non solum movetur propter delectabile et contristabile secundum sensum,"[5] writes the author of *De Potentiis Animae.* Though the ewe flees from the wolf,[6] it is not because the latter's color of fur or general appearance are unpleasant, or its scent repellant.[7]

Therefore, the external senses cannot furnish the explanation for these observed facts. Though St. Thomas goes no further in his inquiry, his master, Albert the Great, and even St. Bonaventure, wonder whether the imagination might not hold the key to the problem. Bonaventure decides that it does not: "Ad imaginationem solam non sequitur affectus miseriae vel tristitiae vel fuga vel insecutio." And St. Albert in his commentary on *De Anima* gives the reason for this conclusion:

> Every being endowed with sensation has at least two vital movements, retract- ability and the movement of dilation. And since these animals display self- motion in seeking their food, it follows that they must represent that food to themselves in one way or another by what we might call their imagination. But imagination, alone, is not enough to present the object to them inasmuch as it is useful or harmful, for all it does is reproduce the external sensations which, on their part, have no element of the useful or harmful.[8]

Contact is made with the object known through sight, if the object be blue or red, through hearing, if it be discordant or harmonious, through taste, if it be

bitter or sweet, through smell, if it be odoriferous, through touch, if it be rough or smooth. But none of these senses reports whether the object be useful or harmful to the health or life of the animal and least of all to the preservation of the species. There is therefore, in corporeal beings, some real aspect which does not fall within the province of the exterior senses, or even that of the imagination, which, even according to modern psychology, elaborates only the data of the exterior senses. Some name had to be given to this real aspect; the Ancients simply called it *intentiones non sensatae,* a formula which defies translation.[9]

THE ESTIMATIVE FACULTY

Had they been steeped in Positivism the Ancients would not have progressed beyond these facts. But they were not Positivists. For these facts, simple, no doubt, but none the less incontrovertible, they wanted some metaphysical explanation, which, to them, was the only explanation worthy of the human mind. That is the reason why, eschewing further experiments, they proceeded to reason on the data at hand. Their first conclusion is that knowledge of *intentiones non sensatae* is a necessity of nature. Indeed, without this knowledge, the preservation of animal species could not be assured. That is why St. Thomas explicitly in the *Summa*[10] and implicitly in his other works views these facts as a simple application of the principle "Natura non deficit in necessariis". Who wills the end wills the means, and when the agent has sufficient power these means are realized without fail. The application of this principle at once completely transforms the material which furnished the starting point; what we have to work with is no longer a mere collection of facts, more or less rich, but a truth required by the principle of finality itself.

On the other hand, as all scholastic philosophers admit, no created agent acts directly by its own essence. Between the created essence and its operation there must of necessity be placed as intermediary some active potency or faculty. Consequently it must be admitted that there exists in animals some faculty or capacity for knowing what is useful, harmful, or harmless. Now some name had to be given to this faculty. The Ancients called it *aestimativa,* that is, the faculty which "estimates", judges that an object is useful, harmful, harmless; or, as Suarez understood the term, "aestimativa dicitur quia in rebus ipsis aliud aestimat quam quod exterius appareat".[12]

Starting from experimental facts obtained from the observation of animals the ancients came to know of this estimative sense. Now man, too, is an "animal"; he too then, for the same reasons and for the same purpose, will have his own estimative sense. But there is a difference. Man is a rational animal. By reason of this simple fact man's estimative will be somewhat in a class by itself.

In the case of man the spirit, substantially united to the matter, effects together with that matter a principle of activity which is essentially one. Hence, in every human action this twofold element must of necessity make itself felt.

That is why even in his most immaterial act of intelligence man always depends in some way on the material objects furnished by his body, itself immersed in a combination of essentially material conditions. The same is to be said of man's acts of sense cognition and of sense appetite. He cannot avoid having these acts shot through with a spiritual character of some sort. Of the sense faculties with which man is endowed some will experience this influence of the soul on the body more than others, and these will consequently exhibit a modality of action which, though it does not transform them into spiritual faculties, nevertheless raises them to a very definite superiority over the corresponding faculties found in animals. And it is precisely among the number of these privileged faculties that man's estimative faculty must be placed. St. Thomas writes: "Aliquae vires sensitivae, etsi sint communes nobis et brutis, tamen in nobis habent aliquam excellentiam ex hoc quod rationi junguntur." The source of this excellence is to be sought, not in some property of our sensible nature, but in a kind of affinity of the human estimative with reason properly so called, a sort of recoil action originating in the spiritual soul:

> Non per id quod est proprium sensitivae partis, sed per aliquam affinitatem et propinquitatem ad rationem universalem secundum quamdam *refluentiam.* Et ideo non sunt aliae vires, sed eaedem perfectiores quam sint in aliis animalibus.[13]

This last text makes appeal implicitly to that principle of Dionysius which I once called the principle of contiguity,[14] by reason of which "beings inferior in the scale of *being* establish contact at their apex with what is less perfect in superior beings." If this is a true principle—and it is, since in the last analysis it is nothing but an aspect of the principle of finality—it is quite a normal thing that our sensible nature be bound to our intellectual reason by something which, while it remains in the material order, participates in some way with reason. This something cannot be other than this faculty whose object, though doubtless furnished by the external senses, is nevertheless not reached by them, namely, the human estimative. In the *De Veritate* St. Thomas calls it:

> . . . quod est altissimum in parte sensitiva ubi attingit quodammodo ad partem intellectivam, ut aliquid participat ejus quod est in intellectiva parte infimius, ut dicit Dionysius, quod principia secundorum conjunguntur finibus primorum.[14]

Because this faculty is in man a thing apart, for clarity's sake a special name had to be found for it. To fulfill its purpose properly this name had to express both the sensible characteristics of the faculty and its proximity to the discursive function of reason, which is the inferior mode of intellectual cognition. The name *cogitativa* was finally decided upon. Indeed, for the thinkers of the middle ages, it expresses on the one hand this notion of successive cognition: "cogitare est considerare rem secundum partes et proprietates suas, unde dicitur quasi co-

agitare,"[16] and this is applicable to sensible faculties. On the other hand, *cogitare* also implies intellectual cognition inasmuch as it is discursive. "Cogitare proprie dicitur motus animi deliberantis nondum perfecti per plenam visionem veritatis,"[17] as St. Thomas says in the *Summa.* And in the Commentary on the *Sentences* he calls attention to the fact that it is intellectual *cogitatio* which has received its name from the sensible *cogitativa,* because the process proper to human cognition consists in going from the material to the immaterial.[18] We may therefore propose a trial definition of the cogitative: it is the sensible faculty, proper to man, which, in man, plays a role analogous to that of the estimative in animals. "Quae est in aliis animalibus dicitur aestimativa naturalis in homine dicitur cogitativa."[19] The term, however, is of minor import; our task is now to investigate—and that in detail—just what it stands for.

DISTINCTION AMONG INTERNAL SENSES

First of all, we are dealing with a sense faculty. It will therefore have an organ, which is the brain. And because the Scholastics are strictly dependent on the Arabs for this doctrine they adopt the theory of "cerebral localizations" proposed by Avicenna, Alfarabi and Averroes, themselves skilled in the medical art.[20]

This sensible faculty is a cognitive and not an appetitive faculty. Its act—our basic experiences testify to the fact—is an act of cognition which presents the object as beneficial or dangerous. Since, however, this object is apprehended dependently on the external senses, even though it is other than the proper sensible of each of these, as we have already seen, we have to say that the cogitative is an internal sense. Furthermore, like all cognitive faculties, it is to some extent disengaged from matter. This degree of immateriality is characterized by St. Thomas in the *Quaestio Disputata De Anima:*

> Unus enim gradus est secundum quod in anima sunt res sine propriis materiis, sed tamen secundum singularitatem et conditiones individuales quae sequuntur materiam: et iste est gradus sensus qui est susceptivus specierum individualium sine materia, sed tamen in organo corporali.[21]

Is this internal sense a simple aspect of a single function, the other aspects of which would be the "common sense", imagination and memory? Or is it rather a faculty really distinct from the other three? We are here proposing the question, nowadays scarce considered, but at one time much disputed, of the number of the internal senses. To reach a solution the ancients had to define with great care the formal object of each of these senses as well as their specific operation, in a word, their nature. If then we wish to know just what the cogitative is, we must, if not treat the question in all its breadth, at least examine

it in the light of the principles which, according to St. Thomas, are the basis for real distinction, and in the light of their application to the cogitative itself.

The facts considered and analyzed above make it clear that the cogitative is actuated by what we have called *species insensatae,* whereas common sense and imagination are actuated by species that come from the exterior senses. From this St. Thomas draws the conclusion that the cogitative is really distinct from both the common sense and the imagination.[22] We are evidently dealing with a simple application of the principle admitted by all philosophers: “Any distinction in objects involves a distinction of potencies.” “Secundum distinctionem objectorum attenditur distinctio potentiarum animae,” as St. Thomas himself says in the *Quaestio Disputata de Anima.*

But is this application a legitimate one? Saint Thomas tells us, and Suarez agrees, that there must be a difference in the objects in their very nature as objects.[23] Is this condition realized in the present case? St. Thomas, and his commentator Cajetan with him, considers the affirmative answer evident: "Potentiae versantes circa intentiones insensatas sunt aliae a respicientibus sensata.”[24] Suarez however rejects not only this evidence but also the solid foundation of the distinction between these two sorts of species as useless. He says that one may admit it if he so wishes, but in any case it is not deep enough to justify a real distinction between the corresponding potencies.[25]

In order to justify this specific distinction of the species, St. Albert draws attention to the opposition existing between the purely speculative character of imaginative cognition and the practical character proper to the estimative and cogitative. Between these two kinds of cognition, and consequently between the two series of species on which they depend, there will exist the same relation as between speculative and practical intellect. Nevertheless, Suarez is right when, though conceding this identity of relation, he denies the real distinction between the two intellects, and in doing that he remains faithful to traditional Thomistic teaching.[26]

In his *Cursus Philosophicus* John of St. Thomas approaches the question from a different angle. We know that the root of cognition is the immateriality of the cognitive faculty. This principle implies that there is in every cognitive faculty some minimal independence as regards matter and material conditions without which there could be no cognition whatever. It follows that the more complete this independence the more perfect the cognition which is founded upon it. Thomists and Suarezians agree on this point. On the other hand, an object—or rather the species which represent this object and through which it actuates the cognitive faculty—will be more immaterial in proportion as they are more abstract, since abstraction proceeds precisely from the fact that the object is disengaged either totally from matter and its conditions, as is the case in intellection, or partially from certain conditions of matter only, as happens in sense cognition. The greater the freedom of these species from matter, the greater their universality, and the higher their perfection. These different degrees of abstraction will thus offer a foundation for establishing the specific differences

between the objects of different faculties of cognition and hence for justifying the real distinction between them as well as their multiplication.[26a]

John of St. Thomas applies these principles to the species of the common sense and the imagination and to those of the estimative and cogitative. The species of the first named senses are furnished by the external senses and depend upon them, so that they have only a rather imperfect degree of abstraction, and consequently, of immateriality. The second, though taken from what the external senses furnish, are not themselves furnished by those senses; they are and remain *species insensatae* (let us here call to mind the dictum of Algazel, quoted by the author of *De Potentiis Animae:* "Aestimativa est virtus apprehendens de sensato quod non est sensatum"). They have therefore a greater degree of independence from the conditions of matter. This is all the more true because they contain—and John of St. Thomas insists on this fact—the element of utility and harmfulness, not to the external senses, but to the nature itself, considered either in each individual or in the entire species. Were it otherwise, St. Thomas remarks,[27] the external senses and the imagination would have sufficed and there would be no need for the estimative and the cogitative.

If then the object of this last faculty is more abstract than that of the imagination and is therefore specifically distinct from it, the faculties themselves will needs be really distinct. The difficulty raised by Suarez against the Thomistic doctrine no longer has point; the distinction between *species sensatae* and *species insensatae* is not at all an empty one; indeed that distinction is sufficiently deep to serve as foundation for the real distinction between the estimative and cogitative and the common sense and imagination. In this way we establish the existence of an autonomous faculty called estimative in animals and cogitative in man.[28]

The reasoning process of the great Thomist is no doubt captivating. For it to be irrefutable, two questions would have to be answered. First of all, is it true that every degree of abstraction in species established a specific difference between those species? Again, is it true that the species which actuate the estimative are more abstract than those of the imagination? As long as an affirmative answer to both these questions has not been justified the problem of the existence of the estimative and cogitative will not have been solved but only pushed back.

As far as I know, John of St. Thomas never attempted to do this, just as Suarez made no attempt to prove his negative answer to the problem. On the other hand, Saint Thomas never drew an argument from the greater or less degree of abstraction when he wished to prove specific distinction between the five senses or between imagination and *sensus communis.* We have reason to suppose that if he did not do so it was because he saw that there was no need for it. Still, the objection may be proposed that Saint Thomas makes a real distinction between the two kinds of faculties which he calls *sensitivum* and *intellectivum.* Here he founds his distinction on a difference in the degree of abstraction of the object. On a simple degree of abstraction? I rather think not. It would be more exact to speak of the presence in the *intellectivum* of an

abstraction properly so called which is not found in the *sensitivum.* This abstraction affects not only one or other of the conditions of matter, but matter itself. The abstraction of the *sensitivum,* on the contrary, is not a true abstraction; it cannot make these potencies intrinsically independent of matter, as is done in the abstraction of the *intellectivum.* Whence it is clear that in this case the opposition of material-immaterial is sufficiently marked to serve as a foundation for a specific and even a generic difference. When it comes to distinguishing the estimative from the imagination we are confronted in both cases with dependence as regards matter, and a mere difference of degree in this dependence is hardly enough to justify a specific difference. It would therefore seem to be more in harmony with the truth and with the thought of St. Thomas not to answer the first question in the affirmative.[29]

As for the second question, it can be solved only by a very close inspection of the *species sensatae* and the *species non-sensatae.* Both are abstract in the sense that they do not represent all and every one of the notes which go to make up the object known, but only some particular aspect. The ewe, by sight, knows only something which is colored and has some certain form or figure; by hearing it knows a thing as sonorous and by smell knows it as having an odor. Each of these senses performs an abstraction, but an abstraction in the improper sense of the term. The ewe's *sensus communis* gathers together all these external sensations and puts them together to form the wolf-object known through the senses; at once this centralized data puts the imagination into act: the ewe represents to itself within itself the wolf-object.

Thus far nothing in our analysis leads us to suspect that the ewe will leap up and flee. Yet that is exactly what takes place. This sudden flight, brought about by the sight of the wolf, the only phenomenon which falls under our experience, must have some explanation. Sufficient reason for it must lie in some representation that came up in the ewe's consciousness, by reason of which the ewe cognizes this concrete object which it saw, heard, smelled, as constituting at this precise moment something which is a source of definite danger for it. This representation it is which belongs to the estimative. This faculty has then passed from potency to act, and that under the influence of the object, taken, not in its material character, but in images dependent upon it, in *species impressae,* as the scholastics put it, which originated in the object and were received in the estimative. Then it is that this faculty, put into first act, can pass to second act, that is to say, can place the act of knowing the wolf, not as something colored, sonorous, odorous, but as dangerous.

Whence come these *species impressae*? The simple truth is that we do not know.[30] All that we can say is that they do not come from the other internal or external senses, as the analysis of the fundamental facts showed us. That is why they are called *insensatae.* Are they abstract? In the sense which we admitted for the other senses they certainly are, for they represent the wolf only under a certain aspect, that of harmful. Are they *more* abstract? Are the *species impressae* of sight more abstract than those of hearing or smell? It seems to me that it is impossible to answer yes or no. These species represent two or three

mutually irreducible aspects of the same body, and that is why they are specifically different. As I see it, the same is true for the species of the estimative and those of the other senses. In dealing with them we cannot speak of greater or less abstraction, but only of a different abstract aspect, which is neither what is colored, or sonorous, or odorous, or even the object as constituted with its sensations grouped together by the *sensus communis* in the imagination. It is precisely in this that we find a specific difference between these two series of species and consequently between the potencies which they are to actuate.

Will the same be true for the aestimative and the memory? St. Thomas answers that it will. Research into the principles on which this affirmation is founded gives us an occasion to go deeper into the part played by the estimative and cogitative.

As St. Thomas sees it, memory has the same relation to the aestimative as imagination has to the *sensus communis.* In fact, just as the imagination preserves the *species sensatae* received from the external senses and grouped by the *sensus communis* around the object known, so the memory preserves the *species insensatae* of the estimative. For, the imagination, according to St. Thomas' metaphor, serves as a strong-box in which the first type of species is kept; the memory serves the same purpose for the second group. This doctrine is evidently founded on the great need of animal nature, as well as on the data of experience. Pigeons know at what time they are fed and gather together at that time; the elephant in the zoo recognizes the practical joker who gave him a pebble instead of a cookie. It is evident that the birds of the air and the pachyderm himself have somehow kept the representation of the object as a good thing or a bad thing.

The reason for this is that the memory knows the past as past, that is to say, the animal is conscious of what was already seen, already heard, already smelled, already avoided or sought, and that not only at the moment when one of these sensations is renewed. This apprehension on the part of consciousness is evidently not something intelligible, but something sensible, not otherwise than the knowledge of the object as present and the consciousness of its actual presence.[32] But the past, as past, is not given by the external senses; it is therefore one of these *intentiones insensatae,* which are the object of the estimative. As we find in the *Summa Theologica:* “Ipsa ratio praeteriti quam intendit memoria inter hujusmodi intentiones computatur.”[33]

The statement is important. For then the memory will not concern itself only with the useful and the harmful, which is not furnished by the external sense, but also with every external sensation gathered by the *sensus communis* and preserved by the imagination, provided it be in order to recognize them. In such a case there seems to be no reason for seeking a real difference between the estimative and the memory, especially since, as St. Thomas says, remembering comes about as occasioned by what is useful or harmful.[34] Nevertheless, St. Thomas insists on the real distinction for two reasons.

The first reason is physiological. He says in the *Summa:* "Recipere et retinere reducuntur in corporalibus ad diversa principia."[35] Where there is question of bodily operations, those which consist in simply receiving the impressions from the object will have to be referred to an organ, and those which consist in preserving these same impressions will have to be referred to another organ. On the other hand, although, according to St. Thomas' own teaching,[36] the faculty does not exist for the organ, but the organ for the faculty, still, one of the signs by which we know that the faculties are different is precisely the fact that the organs are different, since it was impossible for nature not to harmonize the organs with the faculties they were destined to serve. But the argument for diverse organs, taken from the discarded physiology of the middle ages,[37] not even the most enthusiastic Thomist in our own day would press very far.[38]

The second argument is based on the fact that in the estimative, as also in the *sensus communis* and the imagination, the movement goes from things to the soul, since the object actuates and modifies the faculty, whereas in the case of the memory the movement goes from the soul to things. Sertillanges expresses this in a felicitous phrase: "The other sensible faculties are centripetal; this one is centrifugal."[39] There is therefore a very different movement in the memory and in the cogitative, and, as St. Thomas adds, where the movement is different, the principles are different, and therefore the faculties are different.[40] It seems strange that none of the treatises of scholastic philosophy more or less *ad mentem sancti Thomae* which have been published within the last fifty years makes much of this argument. Indeed, why should this difference of movement be so deep that it demands two specifically distinct potencies? St. Thomas gives no explanation of this.

It is clear that St. Thomas affirms the distinction between the estimative or cogitative and the other internal senses. No one, not even Suarez, quarrels with the general principles which he makes use of to defend this thesis. The difference of opinion is on the application of these principles to the particular case of the estimative (and of the other senses as well). St. Thomas seems to consider as evident and in no need of proof that these different faculties have different formal objects, that the centripetal and centrifugal movement reaches down to the very nature of the faculties. To other thinkers all this does not seem so evident. Thomas' disciples merely repeat the words of the Master, without adding anything, and when one of their number, John of St. Thomas, for instance, tries to go deeper, he only succeeds in pushing the problem back a step. The problem itself remains without a solution. We are thus left to make a choice between two positions: we must either leave the question open, or accept the view of the Angelic Doctor, but only out of fidelity to the thomistic tradition, urged by a sort of argument from comparative authority.[41]

FUNCTION IN INTELLECTION

Up to this point we have spoken as much and more of the estimative of animals than of the cogitative in man. All, however, that we have said of the first is true of the second; for, as we have seen in St. Thomas himself, the cogitative is to man what the estimative is to animals. We have indicated the points of similarity in this analogy. We must now consider the differences and study what is peculiar to the cogitative, namely, the part it plays in human cognition.

Above all we must not lost sight of the sensible, and therefore corporeal and material, nature of the cogitative, no matter what part it plays and the extent of the part it plays as seen by St. Thomas. Even when he identifies[42] the cogitative with the *intellectus passivus,* which Aristotle discusses in the third book of his concerning the soul and which Averroes considers as constituting the specific difference of man, St. Thomas strongly insists that man can be distinguished from brute beasts only by a spiritual element, and that that *intellectus* is corruptible, and therefore material. The cogitative, moreover, can know only what is concrete, singular, individual. This too St. Thomas never tires of repeating, even when he seems to accept a common nature as the object of this faculty and a rational process as its act.

Still, it is all important to understand clearly how the cogitative reaches and knows this concrete object, these *intentiones particulares,* and consequently, how this sense faculty functions. Frequently repeated by the Angelic Doctor is the idea that the cogitative is to these *intentiones particulares* what reason is to the *intentiones universales.*[43] This similarity between the sensible and the spiritual faculty Saint Thomas expresses by the verb *conferre,* and its derivatives, *collatio* for the act, and *collativa* for the adjective. But he also uses the same verb as a technical term to designate the operation of man's intelligence inasmuch as it is discursive. As I have tried to show in a study on *Intellectus et Ratio Selon Saint Thomas,*[44] *conferre* in a rather general sense signifies that process by which the human mind simply takes possession of multiple elements for the purpose of reaching some truth, through simple comparison of two or more objects. In the strict sense, the word can stand for the work of the mind given over to more or less long and difficult search, making use of known elements to raise itself to the level of a truth heretofore unknown. Finally, in a still more narrow sense, it would be the aspect taken by the discursive process of the *ratio* which, once it has gathered together the elements of its reasoning process, places them one next to the other, as if to pass thus more easily from one to the other and discover the sought-for truth.

If such is the case. Saint Thomas conceives the work of the cogitative on the pattern of reason. This is so true that he proceeds in the same fashion to explain the name of *ratio particularis* or even of passive intellect which the cogitative often takes,[45] and to point the fundamental difference between the cogitative and the estimative. He writes in the *Summa Theologica:* ". . . alia animalia percipiunt hujusmodi intentiones solum naturali quodam instinctu, homo autem per quandam collationem." This doctrine of the later years of his teaching was

also the one he defended in his youth, as we see in the *Sentences:* "In the other animals there is no *collatio;* they reach these objects through an impulse *(instinctu)* of nature; that is why their operation is not called reason but estimation."[46]

To St. Thomas, then, this *collatio* is characteristic of the specific function of the cogitative, and this precisely by reason of the union in man, and in man alone, of the sense nature with an intellectual nature, *propter conjunctionem ad animam rationalem,* as is explained in the same article of the *Sentences.* And the response to the fifth objection in the article of the *Summa* referred to above declares this to be by reason of a certain affinity and a certain proximity to reason which can know the universal, and which overflows, as it were, into the sensible part, *"secundum quandam refluentiam".* It is by reason of its corporeal nature that the cogitative can deal only with singular notions *(intentiones particulares);* it can act upon these by *collatio* because of its proximity, in a single person, to an intellectual nature.[47]

It is not enough to say that the proper act of the cogitative is this *collatio.* We must go deeper and try to see the mechanics of this operation. If we look closely at the texts of St. Thomas we see that the matter is quite complicated.

To begin with, two texts tell us that the *intentiones particulares,* and therefore the knowledge of the object as harmful or useful, are the result of this *collatio,* somewhat in the way that a speculative or practical conclusion flows from an intellectual reasoning process properly so called. This is indeed what is suggested by the word *inquirere,* employed in the *De Anima* (a. 13) : ". . ad haec quidem cognoscenda pervenit homo, inquirendo et conferendo." In this case the analogy between the cogitative sense and the intellect is quite easy to understand.

We must, then, admit a reasoning process in the cogitative. And if this is admitted, a judgment must also be admitted! These words in no wise frighten St. Thomas. In his Commentary on the *Ethica* he has put down this surprising text:

> Sicut pertinet ad intellectum in universalibus judicium absolutum de primis principiis, ad rationem autem pertinet discursus a principiis in conclusiones: ita et circa singularia vis cogitativa vocatur intellectus secundum quod habet absolutum judicium de singularibus. . . . Dicitur autem ratio particularis secundum quod discurrit ab uno ad aliud.[48]

It is all there: judgment and discursive process, and even something in the cogitative which is equivalent to the distinction between *intellectus et ratio.* And let it be noted that this text corresponds to nothing in the Greek text of Aristotle. Furthermore, he teaches exactly the same doctrine in the *Summa Contra Gentiles:* "Cum virtus cogitativa habeat operationem circa particularia quorum intentiones dividit et componit . . ." Here we have the technical term to describe the judgment. Elsewhere: "Hujus autem cogitativae virtutis est distinguere

intentiones individuales et comparare eas ad invicem, sicut intellectus qui est separatus et immixtus comparat et distinguit inter intentiones universales."[49] Even though these lines are taken from the author's exposition of the thought of Averroes, they are not rejected by St. Thomas who attacks the Arab on another point and grants him this one, which contains precisely one of the meanings of the verb *conferre.*

St. Thomas' authentic thought therefore admits for the cogitative a capacity for judging and a discursive process, and does so even in passages where the organic and corporeal character of this faculty is strongly emphasized. Is there some contradiction here, or at least a lack of logic? Suarez seems to suggest as much when he writes:

> As for the cogitative, many consider it as a sensitive potency, proper to man, capable of reasoning and judging on singulars. But such an operation is beyond the powers of a sensible faculty! Let us then say that the cogitative is simply nothing more than the internal faculty, inasmuch as, according to the human way, it distinguishes what is harmful and what is useful. In man it has a greater perfection, because it acts not only under the drive of nature, but is also directed by a more noble cognition and experience and often by reason itself.[50]

It would indeed be most extraordinary that Thomas should fall into this lack of logic or contradiction, especially as in the same context, and often in the same sentence, he affirms both the organic nature and the judgment or discursive process of the cogitative. As good exegetes we must therefore examine as closely as possible the authentic thought of the Angelic Master. This will necessitate a complete—and therefore sometimes complex—analysis of the part played by the cogitative in intellectual cognition.

COGNITION OF THE SINGULAR

It is in his commentary on Aristotle's *De Anima,* speaking of the formulas "*sensibiles per se* and *sensibiles per accidens*", that Saint Thomas tells us, though nothing in the Greek text suggests it, how he conceives the knowledge of the individual by the cogitative.[52]

In order to be *sensibile per accidens,* a known object must verify the two following conditions: first, the object must be something accidental as regards the proper object of an external sense. What is white is the proper object of the sense of sight, but whether or not that which is white is a man or a ball or a dog is accidental to it as the proper object of sight. Man (or ball or dog) is therefore a *sensibile per accidens* as regards the sense of vision. Besides, the knowing subject must in one way or another apprehend this object, else there could be no question of an act of sensation. In other words, a *sensibile per accidens* must

be by its nature *(per se)* knowable for some other cognitive faculty of the same sentient subject. What can this other faculty be?

There are but two possibilities. Either this object, called *sensibile per accidens,* can be apprehended by some other external sense, or it cannot be thus apprehended. The following example may be given of the first case: sugar is white and sweet. From the point of view of sight, what is sweet is *sensibile per accidens,* for it is accidental for a white object to be also sweet. But as regards taste, what is "sweet" is a proper sensible. In the second case, either the object is apprehended in abstract or universal fashion, and then it falls under the proper object of the intellect, or it is apprehended in its concrete and individual singularity, so that I see a colored object *(video coloratum),* and thus perceive that it is my friend John, or his dog, Sport *(percipio hunc hominem, vel hoc animal),* in which case, if the cognizing subject is a man, he apprehends John or Sport by the cogitative, and if he is a brute animal, by the estimative.

Thus, for St. Thomas, the individual as such—not the abstract notion of the individual, but the concrete reality of individual, of singular—is the object of the cogitative or estimative. And this is as it should be: it is a *species insensata!* It can therefore not be of the domain of the imagination, which simply preserves sensible data, nor of that of the intellect, a faculty which, with man at least, deals with what is universal. The only thing left, really, is the cogitative or estimative.

Each of these, however, will apprehend the individual differently. The first, as St. Thomas teaches us, knows the individual as existing in a common nature, *ut existens sub natura communi,* a thing which the second cannot do. What does he mean by this?

The ewe knows her lamb as something concrete, individualized, but not inasmuch as it is this individual possessing the nature of a sheep; she knows it only in that she knows, without being conscious of it, that she is impelled to give her milk to this white, baa-ing, gamboling object, that to this other object, green and flexible, which caresses her muzzle and which we call grass, she must go to eat it. In other words, the animal, by its estimative, apprehends the individual thing merely as the principle of an action to be performed or an influence to be undergone *(secundum quod est terminus et principium alicujus actionis aut passionis).* This knowledge of the individual thing thus reduces itself simply to the small initial impulse which sets in motion the psychic and physiological mechanism which culminates in nursing the lamb or eating this grass. This is quite natural, since this faculty is given to the animal to guide it as to what actions are to be performed or avoided, as useful or harmful to its nature. This Thomistic interpretation of animal behavior naturally calls to mind certain modern descriptions of blind instinct showing "every action immediately suggested by the present image, reduced to this representation, enclosed within it, and not going beyond."[53]

The cogitative, for its part, apprehends the individual thing, not only as the term or principle of action or passion, but *ut existens sub natura communi.* What

may be the meaning of this formula, unique[54] if I am not mistaken, in the works of St. Thomas?

St. Thomas tells us that the cogitative knows *hunc hominem prout hic homo, hoc lignum prout est hoc lignum.* It therefore knows Peter as something concrete in which human nature is realized, and this oak table as something concrete in which is realized the nature of that tree which we call an oak. This is something which the estimative does not do. In the same way the cogitative knows not only Peter, but also James and Louis and other individuals, even if the agent has nothing to do with them at the time. This is evidenced from the opposition that St. Thomas here establishes between the estimative and the cogitative.

Does therefore the cogitative, a sensible and organic faculty, know the common nature, that is, man or oak as universal? St. Thomas is careful to say no such thing. He says that the cogitative knows the individual as existing, and as coming under the human nature. Strictly speaking, therefore, it knows only the individual. Yet, the human being who makes use of his cogitative sense becomes conscious—a thing that the brute beast could never do—that this object-individual which he apprehends by his cogitative realizes the universal nature of man or of oak, and he knows this universal nature of man or of oak by his intellect.

St. Thomas refers to this interpretation when he adds the explanation immediately following "quod contingit ei in quantum *unitur* intellectivae in eodem *subjecto".* What the cogitative receives from its union with the intellect is not to know the individual, but to know the individual as existing concretely while realizing an universal nature. And when St. Thomas insists on the fact that it is united with the intelligence in one and the same knowing subject, he is applying his basic doctrine of the substantial unity of the body and the soul constituting a single person, a single true principle of operation.

This single agent places its operation through the medium of its different faculties. When I know Peter or this table my concrete vital act of knowledge is one, but each of my corporeal or spiritual faculties serves me as an instrument to place the act. Through vision I know this object as colored and possessing certain shapes; through the *sensus communis* I group these different *colorata* about a single nucleus; through the imagination I pigeonhole it and preserve it; through my cogitative I know it as an individual thing, and since at the same time, through my intelligence, I have, occasioned by this concrete object, formed the universal idea of man, I, one single knowing subject, finally come to know Peter as concretely existing in human nature.

Of course, life leaves intact the unity and instantaneous character of this cognition which psychological analysis—and it alone—has just cut up into parts. In this way we come in contact with the part played by the cogitative in intellectual cognition.

In our study of the cogitative sense we have so far viewed it alongside the estimative sense of animals and considered, in a general way, its role in intellection and in the cognition of the singular. We have now to examine in

particular the function of the cogitative in intellectual cognition. The first aspect of this function deals with the preparation of the universal concept in the ideogenic doctrine of classical Thomism.

St. Thomas' views on this subject are found in a context in which he is stating his case against Averroes.[55] We know that Averroes considers the possible intellect as something outside of the individual and one for the entire human race. We know too that in the doctrine of Alexander of Aphrodisia and of Avicenna it is the agent intellect that is posited outside the individual.

AVERROES AND THOMAS ON THE FUNCTIONS OF THE COGITATIVE

Since Averroes places the possible intellect outside of man he cannot make this intellect the formal constitutive element in man and that which distinguishes him from the brute. What then will this distinguishing element be? It will be the passive intellect, which Aristotle, in the second book of *De Anima*[56] speaks of as corruptible and indispensable for the act of understanding.

What is the character of this passive intellect? For Averroes it is the cogitative. The cogitative, then, is man's formal constitutive element and specific difference. This is how Averroes looks upon the part played by the cogitative in human cognition:

(1) It grasps the differences existing between particular data and compares one with the other. Its function here is analogous to what the intellect, a completely immaterial faculty, performs with the universal.

(2) Working together with the imagination and memory the cogitative so prepares the phantasms that they will be capable of receiving from the agent intellect the influence which will make them become intelligible in act. Here the cogitative has somewhat the same relation to the intellect as the sculptor's helper has to the artist in preparing for the latter the material which he will transform into his masterpiece.

(3) In view of this same fact it is clear how the more or less perfect dispositions of the cogitative will have an effect on the intellectual power of individuals and will explain their great differences in intellectual keenness.

(4) Furthermore the *habitus* of science (knowledge), which is the ease with which we can draw conclusions from their principles, is acquired through frequent exercise of the cogitative. Reciprocally, the cogitative itself is perfected by the *habitus* of the various sciences.

(5) Lastly, the new-born child, even before he can perform his very first act of intellection, is, from the very first moment of his existence, endowed with this cogitative, which is that precisely by which he is a human being.

This is, then, at least as St. Thomas sees it, the part which Averroes assigns to the cogitative.[57] As a matter of fact, the exact view of the Arab philosopher concerns us but little. What we are looking for is the Angelic Doctor's own view in the matter.

First of all, he grants Averroes that the passive intellect, corruptible and altogether necessary for the act of intellection, is indeed a sense. In his own commentary on *De Anima* he limits himself to this general statement.[58] In his explanation of the *Ethics,* however, he states definitely that this sense is the cogitative: "The cogitative is a sense called the intellect of the sensible and singular. It is this sense which Aristotle, in the third book of the treatise on the Soul, calls the passive intellect and of which he says that it is corruptible."[59]

After he has conceded this point St. Thomas absolutely refuses to admit that the cogitative is the constitutive element of the human species or that it is the subject of the *habitus* of the various sciences. He also denies that the new-born child, before his first act of intellection, is deprived of possible intellect and must get along with only the passive intellect or cogitative. His reason for this stand, which he insists upon in any number of forms, is always this: the cogitative is a sense; hence it cannot rise to the spiritual level, a thing which it would have to do in order to fulfil the functions ascribed to it by Averroes.[60]

For the rest St. Thomas accepts Averroes' views. We have already seen from Thomas' own writings the doctrine that the cogitative distinguishes and compares particular data in the same way that the intellect does universal data. However, the function of preparing phantasms before the agent intellect begins its work calls for closer examination.

ROLE OF THE COGITATIVE IN FORMING THE UNIVERSAL

Far from rejecting this function, St. Thomas makes it his own in so many words. In the seventy-third chapter of this same second book of the *Contra Gentes* the Angelic Doctor looks into the unicity of the possible intellect which Averroes held. If, he says, the possible intellect is one for all men, and consequently outside of each of them, whence will men get the specific principle which will distinguish them from mere animals? This cannot come from man's sensitive soul, nor from phantasms, nor from the cogitative. And why not from this last? Because there is only one relation between it and the possible intellect, namely, the work of preparation done by the cogitative on the phantasms to enable them, under the influence of the agent intellect, to become intelligible in act and capable of actuating the possible intellect. Now this action of the cogitative is but intermittent, whereas our specification as human beings must necessarily be unchangeable and constant. Thus, neither the cogitative nor its action can possibly be the sought-for specifying element in man. Obviously the major premise of this Thomistic argument, which St. Thomas evidently admits, is taken from Averroes.

Nor would it be true to call this a mere argument *ad hominem.* Nothing in the text would justify such a view. Besides we have evidence from other texts that St. Thomas really made this doctrine his own.

In the seventy-third chapter St. Thomas examines the view of Alexander of Aphrodisia and that of Avicenna, who for his part made the agent intellect a

separated substance. St. Thomas' objection is that, were the agent intellect a separated substance, we would be unable to posit our acts of intellection *as we please.* There would be two and only two alternatives: to be forever in act, or to lack the free exercise of our intellect. Both alternatives are equally false. But Avicenna replies that though the agent intellect is surely required to enable us to place our act of intellection, it alone is not sufficient. On our part the phantasm must be ready to receive its action. Now the proper preparation of the phantasm is brought about by the cogitative, and the cogitative is subject to our control.

Very well, replies Thomas, but in what does this preparation performed by the cogitative for the act of intellection consist? Avicenna replies that it consists in putting the possible intellect in a condition to receive the intelligible forms abstracted from the phantasms by the agent intellect. Averroes and Alexander of Aphrodisia object strongly and declare that the preparation consists rather in making the phantasms themselves capable of becoming intelligible. The first theory is of no interest to us here. Thomas gives his answer to the second in these words: "Quod per cogitativam disponantur phantasmata ad hoc quod fiant intelligibilia actu et moventia intellectum possibilem conveniens non videtur si intellectus agens ponatur substantia separata."[61] True. But if, with St. Thomas and the majority of scholastic philosophers the agent intellect is considered to be a faculty of each individual human soul, then—the Angelic Doctor's opinion is clear—the obstacle exists no longer, and such an influence on the part of the cogitative can be admitted without any difficulty.

Comes then the inevitable question: how are we to conceive this influence? The solution is also in the *Contra Gentes,* in the answer made to the Averroist doctrine on the cogitative as subject of the science-habitus.[62] St. Thomas first refutes the error directly, then seeks the reason for the error. According to him, Averroes must have observed a certain connection in us between the degree of facility with which we acquire learning and the more or less favorable condition of the cogitative and the imagination. The next step was to conclude to the direct perfecting of these sensible faculties by the *habitus* of science, a step which the Arab philosopher at once took.

St. Thomas says that this conclusion is an invalid one. A *habitus* can perfect only the faculty which acts, and, in the case of knowledge, the operation made easier by the *habitus* is a spiritual one, which by its very nature goes beyond the capacity of the cogitative, an organic and consequently material faculty. Hence it is impossible to conceive the cogitative as the subject of the *habitus* of science. Does this mean that facility for intellectual work in no wise depends on the imagination and the cogitative? St. Thomas is careful not to reject every such influence. He insists, though, that such influence can be only indirect and remote, somewhat like that of which Aristotle speaks in the famous text of the *De Anima:*[63] "Duri enim carne inepti mente; molles autem carne, bene apti", which the Angelic Doctor comments on as follows: "Ad bonam autem complexionem corporis sequitur nobilitas animae; quia omnis forma est proportionata suae materiae. Unde sequitur quod qui sunt boni tactus sunt nobiliores animae et perspicatiores mentis."

Nor is this all. This indirect influence is not exercised on the possible intellect itself, but on the object to be known, or more exactly on the phantasm which represents this object. In proportion as the cogitative and the imagination are perfect, the phantasm will be more perfectly prepared to play its part in the elaboration of what is called in technical language the *species intelligibiles impressae.* This part consists in this, that under the influence of the agent intellect the phantasms, previously intelligible in potency, become intelligible in act.

St. Thomas has left it to his disciples to develop the details of this last explanation. This is how the great commentator of the *Contra Gentes,* Sylvester de Sylvestris develops it.

The Thomistic formula to the effect that the cogitative and the imagination prepare the phantasm to become more easily intelligible in act can be taken in two ways. In the first place, once the phantasm is received in the imagination, the imagination, aided by the cogitative, would act upon it and would dispose it to receive an influx from the agent intellect by reason of which the phantasm, intelligible in potency, would be put in the act of intelligibility. In the second interpretation, the phantasm is so much the more apt to become intelligible in act as the organ of the cogitative or imaginative in which it is received is itself more perfectly disposed.

Ferrariensis declares that the first element of the commentary is to be rejected altogether. How indeed is it possible to conceive that the phantasm, a material entity, constituted by and in an organic faculty, should be transformed, as it were, into something spiritual? The second interpretation is therefore the one to be taken. To understand its scope let us call to mind how intelligible species are formed in the Thomistic philosophy. Their efficient cause is the agent intellect, which, however, employs the phantasm as instrumental cause. Before the phantasm is united to the agent intellect as the instrument is united to the one who makes use of it, the phantasm is said to be intelligible in potency; after it has acted as an instrument under the action of the agent intellect, it is said to be intelligible in act. Both before and after it remains what it is, namely, something corporeal and organic. No matter what the theory, it does not—it cannot— become something spiritual.[64]

Since the phantasm is acting as instrument in the production of intelligible species, it is easy to see that if the phantasm is more perfect, its instrumental action will also be more perfect; and the total effect produced by the principal cause and the instrumental cause, namely, the intelligible species, will also be more perfect; and the possible intellect, actuated by these more perfect species, will finally place the act of intellection properly so called with a greater degree of perfection. In the same way an expert, given a better tool, can do his work more easily, more quickly, and with better results.

But how can we conceive this perfecting of the cogitative, first in its organ, and as a result in its operation? Besides its speculative interest, the question also has some practical importance. Indeed, it is quite clear that the answer might affect in general the methodology of any intellectual work, and individual

pedagogical methods in particular. After all, as St. Thomas grants to Averroes, we are in full control of our cogitative. Hence, if we know how to dispose this faculty to the best advantage, we will have at hand the means to improve our intellectual power of understanding, and our ideas will therefore be more clear and precise.

I do not know that St. Thomas or his commentators ever raised this question. Medieval thought never took this rather experimental direction. Still, could there perhaps be some hint of it in the words of Ferrariensis just referred to? "Quanto recipitur in *organo* imaginationis et cogitativae perfectius *disposito,* tanto magis aptum est ad hoc ut fiat actu intelligibile." It would thus be a question of general physical health, and, more in particular, of integrity of the brain-substance and normal condition of the nervous system. There would thus be a place in the Thomistic system for the suggestions of experts in hygiene who recommend that the body be comfortable in order to do its best work, and for the claims of experimental psychology on the development and training of the imagination and memory.

This then is Thomistic thought on the part played by the cogitative in forming the universal concept. Certain further details must be emphasized in order to grasp its full scope.

COLLABORATION OF INTERIOR SENSE FACULTIES

First of all, this intervention of the cogitative is not limited exclusively to those concepts which imply an element of harmfulness or of usefulness; it is found in the elaboration of any concept taken from concrete and individual reality, precisely because the datum of the individual, inasmuch as it is individual, is a *species insensata.*

Since in this intervention the cogitative works together with the memory and the imagination, the phantasm from which the intelligible species are abstracted is not the product of the imagination alone, as many a current textbook would lead us to think. It is the result of the combined operation of each of these internal senses. It may even possibly be said that in this common operation one sense or another will play a greater or lesser part depending on the nature of the object to be known and its relation to the knowing subject. We must admit this if we keep in mind the fact that there is in us but one real principle of action, the human person, essentially one, which, in order to perform its specific operation *par excellence,* intellection, brings into play this wonderful combination of different faculties which, each in its own way and according to its proper place in the ensemble, makes its contribution toward realizing that masterpiece which is the human idea.

But the human idea is abstract and universal. Now we must act according to the data of reason, whereas our actions themselves are concrete and singular. We must therefore in one way or another come to a knowledge of the material singular thing, the more so since no one can deny the fact that we do have this

intellectual knowledge. Hence it is that every scholastic philosophy has some answer to give to the complex problem presented by this type of knowledge.

INTELLECTUAL COGNITION OF THE SINGULAR

St. Thomas makes this knowledge indirect and reflex. After the preparation we have spoken of, the possible intellect, actuated by the intelligible species taken from the phantasm by the operation of the agent intellect, places its specific act which consists in "saying" the mental word, or, if one prefers to put it so, in conceiving the idea. Thereupon, and immediately, the intelligence turns itself back, as it were, on its own act, and takes it as the object for a new act. It is then that the single knowing subject which is the human person observes that the abstract idea, conceived by the possible intellect, has its principle in the phantasm of which it is the continuation, and, in this phantasm, observes a similar continuation with the actual or past operation of the external senses. In this way the knowing subject, by putting the combination of its faculties into operation, reaches the concrete and the singular.

The phantasm then, next to the intelligence, is the principal element in this complex operation of knowing the material singular thing intellectually. We have seen how the cogitative holds a place of prime importance in preparing the phantasm, and, consequently, in preparing the universal concept. This same place must be accorded it in the knowledge of the singular, and for the same reasons. Does not St. Thomas look upon the cogitative as the faculty of the individual precisely as individual? Ferrariensis is therefore right when he says in his commentary on the *Contra Gentes:*

> The soul united to the body . . . cannot know the singular thing directly. It has an intellectual knowledge of the singular which is simply reflex, in this sense that it turns back on its operation, on the principle of this operation, and on the phantasm, the cause of the intelligible species. Such a turning back *(quae reflexio)* could never be realized without the help of the cogitative and the imagination, both of them sensible powers.[65]

Thus, on the one hand, the cogitative is active in the process of going up from the concrete to the abstract, and, on the other hand, it plays a part in going down from the abstract to the concrete. I do not think that this constitutes a departure from the thought of the Angelic Doctor when he makes what is harmful or useful the formal object of the cogitative. Indeed, we have explicit texts in which the individual is shown as belonging to the cogitative. Furthermore, let us note this fact. Every action is concrete. In fact, we go to the concrete, we seek to know the singular material thing for no other reason than to act. Theory and speculation remain in the field of the abstract, and it is in that field that we find science and speculative truth. We can therefore say that the

concrete thing invites us to act; knowledge of the individual thing is a practical knowledge. Now, action goes of necessity toward the good it wishes to possess and shrinks from the evil it wishes to avoid, and it makes no difference whether the good itself be seeming or real. This is but a form of the first principle of finality which we will not fail to recognize if we remember that the notions of end and good are interchangeable. Thus, when the cogitative prepares in us the knowledge of the singular material thing, it does nothing other than act according to its nature as a faculty which judges some object to be good or bad, useful or harmful to the one who acts; and so we arrive again at the general idea of Thomistic teaching on this point.

THE COGITATIVE AND THE *Experimentum*

The cogitative helps to form the concept by preparing the phantasm; it has something to do with the knowledge of the singular thing. It also has a part to play in establishing those more complete and more rich concepts which are formed gradually and which particularly in combination make up practical science. We must now look into this function of the cogitative.

St. Thomas gives us his views on the subject in his commentary on the first chapter of Aristotle's *Metaphysics.* In studying the notion of wisdom under which all forms of knowledge are grouped in proper order the Angelic Doctor notes the presence in man of memory, and somewhat like memory but of greater perfection, what he calls *experimentum* and Aristotle calls ἐμπειρία**.** What does he mean by this? His answer is put in these terms:

> Experimentum enim est ex collatione plurium singularium in memoria receptorum. Hujus autem collatio est homini propria et pertinet ad vim cogitativam, quae ratio particularis dicitur, quae est collativa intentionum individualium, sicut ratio universalis intentionum universalium. Sicut autem se habet experimentum ad rationem particularem, et consuetudo ad memoriam, ita se habet ars ad rationem.[66]

The *experimentum* is therefore the result of a *collatio* of particular data, in the sense in which this word has been explained above. This is why St. Thomas attributes it to the cogitative as to the faculty which places it; as if in his opinion this operation of gathering together concrete data is the very type of the operation of the cogitative, even though the element of useful or harmful be absent. Thus, the *experimentum* is something proper to man, just as is the cogitative itself. In animals there is to be found at best something which approximates the *experimentum,* which would be that kind of progress in the instinct of animals which moderns have made a great deal of and which is too often considered as unchangeable. St. Thomas observes that as a matter of fact, thanks to the multiplicity of sensations and thanks to the memory of these

sensations which the animal keeps, certain associations are established which teach the animal to seek certain objects and avoid others. Observers tell us that this explains why, in the eighteenth century, whales in the southern seas did not flee from ships, whereas those in northern waters did; the first named as yet were not aware of the danger which threatened their species from these great sailing machines.

Man therefore has the *experimentum* as a privilege. Why? For our answer let us analyze the example used by St. Thomas.[67] Plato has been sick; his pulse was rapid, his temperature too high, his tongue coated—these are so many external sensations which I have made and noted in my memory. Some doctor, as I have seen for myself or been told, gave him a dose of a certain herb—more external sensations which I have similarly noted. Now the sick man's pulse is back to normal, his temperature is lower, his tongue is cleared, and he is cured—a third series of external sensations also noted in memory. Thereupon I said that Plato was cured of his fever by this medicine. I have made the same observations in the case of Socrates, Phaedo, Critias, and so forth.

Now let it be noted that each of these sensations, external as it is and therefore concrete and singular, was accompanied by universal and abstract ideas. I had the general ideas of man, pulse, rapidity, fever, and so forth, and in forming these ideas the cogitative had its part, as we mentioned above. I also had an indirect intellectual knowledge of each of these singular objects, of this man called Plato or Socrates, of this coated tongue. Once again the cogitative has been at work. These interventions of the cogitative come before that of which we now have to speak.

These various observations concerning Plato, Socrates, Phaedo, Critias, were successively recorded in my memory, perhaps at widely different times. But now, I place them all together in my actual, present consciousness; I remember them. Then, going from one to the other, I note the concrete similarity of concrete symptoms in the case of each of my sick men; I note that the four doses of medicine which cured them show a similarity of concrete characteristics; I see that the concrete effect in the four cases was the same. I have therefore a concrete knowledge of these singular instances under a common nature. Now this last named knowledge is what St. Thomas calls *experimentum.* He sees it as a *collatio,* that is to say, a gathering together, a collection of singular data going to make up a singular whole.

In this knowledge the first thing I have is a series of what St. Thomas calls judgments of the senses; that is to say, an operation which attributes some characteristic taken in its singularity to a being itself considered as singular. Plato's pulse has this certain quickening, or again, Plato no longer has this particular pulse-beat. We do not go beyond the singular in this operation, and I see no reason why we may not speak of judgment in the case. Needless to say, this will not be a judgment in the formal meaning of the word, since this formal meaning implies a complete reflexion of the faculty on itself, involving intellect; but it will nevertheless be a judgment which can be referred to as inchoate *(judicium inchoative dictum).*

But I have more than all this. There is a passing from a singular instance to another singular instance, whose result is a concrete observation of an equally concrete similarity. What is to prevent the use of the words *inquirere* or *discurrere* to designate the operation which enabled me to achieve this result? In their strictly etymological sense they are really verified here, since in this process there is really a seeking *(inquirere),* and in this seeking there is really a passing from one thing to another, a progress from here to there *(discurrere).* Why should these two words necessarily and without any exception be given an exclusively spiritual meaning? That may be very well for ordinary language, in which they are set aside to designate the operation of the spiritual reason. Nevertheless, when these words are used to designate a faculty to whose organic and material character attention is called at every moment, any honest exegete must admit that St. Thomas, in order to bring out the analogy existing between the cogitative and reason, has here used the words in their etymological meaning, indifferent to the element of materiality or immateriality.

If this is a faithful analysis—and I do believe it is—it seems to me that the Suarezian difficulty referred to above, which points out the radical impossibility for the cogitative to judge and draw conclusions, falls of its own weight.

It also seems to me that according to St. Thomas this function of the cogitative makes it the faculty which would prepare an induction by gathering together the more or less numerous instances from which the intellect induces a universal law. The cogitative then would direct the process which today is called observation of facts or experimentation, whether we take this in the strictly scientific sense of the words or in a broader sense.

THE *Experimentum* AS "EXPERIENCE"

If all this is true the latin word *experimentum,* which I have not as yet translated, could well be translated "experience." This is all the more so as the accumulation of these *experimenta* will give us what we refer to as experience in such phrases as the following: a man of experience, an experienced pilot, a workman experienced in his field, a politician with experience in parliamentary law. Since these experiences increase with the years they will go to make up the experience of the elders, transmitting itself from generation to generation and forming at length the wisdom of nations.

Do not misunderstand me. I do not mean to claim that in all this the cogitative is alone at work. Such is indeed not the case, for in man the intellect is always dominant in the operation performed. But this does not make less true the fact that in Thomas' opinion it is the cogitative which prepares for the intellect all the singular material from which the intelligence draws its ideas, and forms its own judgments and reasonings.

This experience—we may use the word now—is logically attributed to the cogitative by St. Thomas. For it makes us know singular instances, inasmuch as they are gathered together into a concrete unity by their concrete grouping. But

this last datum is not a *species sensata,* for neither sight, nor hearing, nor taste can give it to us; consequently it falls under the class of *species insensatae,* which, as we saw in the beginning, is the object of the cogitative. Besides, St. Thomas calls attention to the fact that the result of this experience is to make the action more easy and more correct. If it is true that every action seeks the good and avoids the bad, we now find once more, not by some subtle roundabout process but by a deepening of our analysis, that same element of harmful and useful which, as St. Thomas constantly repeats, is what the cogitative seeks in the *species insensatae.*

Since the cogitative is the faculty of experience in the sense just explained it will be found at the very foundation of what Aristotle calls τέχνη,[68] and St. Thomas calls *ars,* a word which we might translate as *art,* provided we take it in the meaning suggested when we speak of the culinary art, the art of military tactics, the art of medicine, or even the art of fishing with a line. It might be better perhaps to keep the Greek word and translate it as "technique." There is an interesting text of the Angelic Doctor in this connection.

> Ponit generationem artis et dicit quod ex experientia[69] in hominibus fit ars et scientia. . . . Modus autem quo ars fit ex experimento est idem cum modo quo experimentum fit ex memoria. Nam sicut ex multis fit una experimentalis scientia [note this word *scientia*, which is evidently to be taken in the general sense of knowledge and not in the restricted meaning given it by Aristotle], ita ex multis experimentis apprehensis fit universalis acceptio de omnibus similibus. Unde plus habet ars quam experimentum quia experimenta tantum circa singularia versantur; ars autem circa universalia.

So this technique is developed through an accumulation of concrete experiences from which the intelligence draws a universal idea and general rules.

Even after all this St. Thomas does not consider that the cogitative has yet played its full part. Using a comparison between experience and technique he enables us to look far into the work of this internal sense in human action.

Experience and technique are similar in this, that they are both connected with action; the purpose of both is the concrete execution of some purpose. But on this field of the singular the cogitative with its experience and the intellect with its technique are not of equal efficacy; experience, and consequently the cogitative, has the upper hand. This is easily understood. Technique, intellectual as it is, does not go beyond the universal, and so remains at a distance from action which is concrete; but experience, as the function of a singular sense, is at home in the field of the singular. In fact, we observe this in our daily experience. A nurse will often do far more good to a patient than some *cum laude* graduate of the medical school with the ink scarce dry on his diploma, who knows his theory inside and out as he finds it in books, but has had no clinical or hospital experience. This is the very example used by St. Thomas.

> Cum ars sit universalium, experientia singularium, si aliquis habet rationem artis sine experientia, erit quidem perfectus in hoc quod universale cognoscat, sed quia ignorat singulare (cum experientia careat) multoties in curando peccabit, quia sanatio magis pertineat ad singulare quam ad universale, cum ad hoc pertineat per se, ad illud per accidens.[70]

Of course, once the young doctor has acquired experience, he knows far more than the nurse, because he has knowledge of both the universal and the concrete.

This must not lead us to extol the cogitative above the intellect. Knowledge through technique is indeed more perfect, since it enables us to know causes and to some extent essences, whereas experience affords only a surface knowledge of facts. When one has technique he is not greatly disturbed by unexpected obstacles and difficulties and is quite able to handle them, using the general ideas in his possession. Given experience alone, however, the least obstacle, the first exception to previously noted experiences can throw everything out of gear. Finally, when there is question of establishing the hierarchy of our various knowledges and connecting them all with a higher principle—which is the very work of wisdom—art, grasping as it does the various universals, can at once discover their hierarchical order. Experience, on the contrary, cannot do this, because it sees only facts following upon one another in time and space. Add the fact that technique can be taught, but experience cannot. For to teach, in the large and noble sense of the word, is to make to know, and to know is to have cognition of a thing by its causes. Experience knows nothing about causes. Technique, which grasps the universal and the supra-sensible, does attain to them. Technique can therefore demonstrate, lead to knowledge, teach. We do say that the man of experience can communicate the result of his experiences. Though this is true, St. Thomas notes that the man of experience can transmit his experience only as “opinion,” that is to say, as a greater or less probability, somewhat after the fashion of the statistical laws laid down by our modem scientists, while for the pupil there will be no more than an acceptance on faith of what is given, and by no means a certitude which is the product of an apodictic demonstration.[71]

THE COGITATIVE AND SENSE APPETITION

What we have called technique deals directly with the material activity of human industry, if we take these words in as broad a sense as possible. There is, above this, a technique of human living, an art of living which is ultimately nothing other than the pursuit of happiness, man's last end. This pursuit rules our moral activity properly so called.[72] The part that the cogitative plays in material activity naturally leads us to ask whether this internal faculty has a

similar influence in the moral field. Since happiness, the object of moral philosophy, is only the ordered satisfaction of our appetites we will perhaps be able to discover some influence of the cogitative as well in the domain of sensible appetite as in that of rational appetite or free will.

Let us begin with the sensible appetite. Its operation depends on previous knowledge of an object which possesses sensible goodness. In some cases the external senses will be able to furnish this knowledge; their pleasure or pain will be enough to explain the desire or aversion as well as the movements of approach or flight performed by the faculty of locomotion. In other cases, however, the external senses will not suffice as an explanation. This is why we noted at the very beginning of this study that the Ancients admitted the existence of an estimative-cogitative faculty, precisely to explain the movement of flight of the ewe on meeting the wolf and on the feeling of fear which brings that movement about. We may therefore say that the knowledge proper to the cogitative is essentially directed toward action, since it is of its very nature to affect the sensible appetite. "Ab ea (cogitativa) natus est moveri appetitus sensitivus."[73]

Consequently, if the intellect can exercise some influence on this same appetite and on the passions which depend on it, it will necessarily do so through the cogitative. Thus Cajetan well expresses the Master's thought when he writes: "In man the appetite is put into motion and directed by the cogitative; the latter in turn is actuated by universal reason; this is why it may be said that the latter puts into motion and directs the sensible appetite."[74] The truth of this is clear. As we have seen, the cogitative is the faculty of the particular inasmuch as it is particular, and only the particular good can affect the sensible appetite. In the domain of action then we have a part played by the cogitative which is parallel to that which it has in the domain of knowledge: the intellect knows the singular only through the cogitative and acts upon it only through that same faculty.

By reason of its very character of *ratio particularis*, namely, of a sense which participates in the operation of reason properly so called, the cogitative in man has a lesser scope than has the estimative in the beast. Let us explain what we mean. In the case of the animal, once the estimative has knowledge of a good, the appetite is at once moved and with absolute necessity puts the faculties of locomotion in motion to take possession—or at least attempt to take possession—of the good presented. The very same is true of a danger to be avoided. Once the wolf is known, fear arises in the sensible appetite of the ewe and panicky flight results. With man, however, it is different. The cogitative can judge one or another object dangerous or pleasurable without the corresponding exterior movement following necessarily. No doubt, in the majority of cases, the appetite will be excited and will feel desire or aversion regarding the object in question. It will even bring about unreasoned flight or irresistible forward movement; such are the *primo-primi,* spontaneous actions on which cold reason has not had a chance to act. But soon reason gains or regains the mastery; by its absolute controlling power over the movements of

the body it will stop them or allow them to continue as it pleases. As regards the passions, however, reason will have to be content with calming them down or arousing them further by dwelling on rational and universal motives of a nature to oppose or confirm the sensible and particular motives furnished by the cogitative; in a word, by giving the cogitative its approval or disapproval.

With us then the cogitative has not absolute power of direction over our passions, as has the estimative in the case of animals, because the cogitative is not the highest light we have in which to direct our conduct. On the other hand, if intellect exercises over the inferior portion of our being that twofold domination, despotic and political, of which Aristotle spoke, and St. Thomas after him, it can exercise such power only by making use of the cogitative, very much like a prince who governs slaves and free citizens through his ministers.

With this last remark we touch upon the field of the will, and so of moral proper. We have to do with those acts by which we tend freely toward our end as human beings, purely and simply, which is happiness.

THE COGITATIVE AND INTELLECTUAL APPETITION

Now, in the moral order, no act is good unless it is placed under the action of natural or supernatural virtues. These virtues give ease to the activity of our faculties, perfect their operation, introduce joy and power into their progress toward good. It is through them that our will decides promptly to render to each his due (justice), or that the lower tendencies of our sensible nature are kept under the yoke of right reason (fortitude and temperance).

But before he acts the virtuous man must throw light on the path he is to follow. He is a just man, and he knows that detraction is to be avoided, and he makes up his mind to avoid it; he has the virtue of temperance, and he knows the commandment: “Thou shalt not commit adultery,” and he wills to keep it; he is a man of fortitude, and he is quite aware of the fact that there are times when duty must be accomplished at the cost of painful sacrifices, and he is resolved to accept these sacrifices. Lines of action and resolutions of this kind are general. Action is the most concrete thing there is, shot through as it is with very exact circumstances of persons, time and place. Is this thing I have in mind to tell my neighbor here and now a real instance of detraction, or is it something he really ought to know? Is the growing friendship between Arthur and Jean such as to put them in danger of some act of conjugal infidelity? Suppose I am a doctor, and some patient asks me to perform an operation which, as a doctor, I see is quite unnecessary, and which my conscience tells me is unlawful. If I refuse to perform the operation I shall lose this rich patient, and many others besides. Must I sacrifice my own interests, themselves quite legitimate, to scruples which many of my fellow-doctors brush aside so easily? In a word, we have the problem of harmonizing the individual instance with the general law.

The virtue of prudence is the one to give the answer. To be able to give this answer the prudent man must know the universal principles and the concrete

conditions in which, if I may so speak, the principles will take flesh.[75] Above all he must have knowledge of the concrete. We do meet people who have practically no general ideas, but who are nevertheless better than others when it comes to action. Their experience of reality is greater. This is so true that, while we insist on the necessity of general principles, we must be ready to give these up should we have to make a choice between them and the concrete,[76] for prudence is active reason and the concrete is closer to action.

The prudent man must reach a practico-practical decision. In view of the circumstances of time, place and persons in which I actually find myself, I must keep the information I have to myself. This decision is the conclusion of a syllogism which St. Thomas calls the prudential syllogism. It is often only implicit, instantaneous, and scarce conscious. In more obscure cases it is the synthesis of a more or less long and complicated process of deliberation. The major of this syllogism is some universal law of justice (detraction is forbidden), or of temperance or of fortitude; the minor is some concrete and particular fact (to give the information I have to others is detraction). Prudence uses its influence in shaping this concrete and particular judgment.

But the knowledge of what is concrete, individual, contingent cannot, at least directly, belong to the intellect, the faculty of the abstract, universal, necessary. To get to this minor premise there is need of a sensible faculty, since only such a faculty can grasp the concrete, individual, contingent. This faculty cannot be an external sense, held down as it is to knowledge of a proper sensible quality, such as what is colored, sonorous, and so forth, whereas there is a question here of grasping the entire individual inasmuch as it is individual. This faculty must therefore necessarily be some internal sense, with the capacity of perceiving data outside the scope of exterior senses, and able to gather the particular data together and judge them from the viewpoint of the end of man; that is, in the light of good or evil. We have already found all these required characteristics in the cogitative. And this indeed is St. Thomas' own conclusion in his commentary on the Nichomachean Ethics:

> Quia singularia proprie cognoscuntur per sensum, oportet quod homo horum singularium quae dicimus esse principia et extrema habeat sensum non solum exteriorem, sed etiam interiorem, cujus supra dixit (Aristoteles) esse prudentiam, scilicet, vis cogitativam sive aestimativam quae dicitur ratio particularis.[77]

It is evident that it is by reason of his views on the cogitative as the faculty of the individual, as we noted above, that St. Thomas brings it into the prudential reasoning process. In the last analysis he is only applying to the domain of moral the psychological analysis we saw him make a while back. In the formation of the phantasm from which the agent intellect draws the intelligible species necessary for the universal concept, and in keeping before consciousness this same phantasm toward which the intellect turns itself back in order to know the material singular thing, St. Thomas did not isolate the cogitative from the other

internal senses. Here too, as the *Summa Theologica* puts it, it is when "perfected by the memory and by experience that the cogitative allows the prudent man to judge the concrete cases, objects of experience, with speed and ease."[78]

We must therefore, *mutatis mutandis,* apply to the *agere* what we have read concerning the *fieri* in the commentary on the Metaphysics; experience *(experimentum)* in the sense there explained comes in here. Thus, just as for art or technique the lapse of years is of great importance, so in the order of prudence, old age has the advantage over youth, and, taking up again a text of Aristotle, Thomas writes these curious lines: "Non videtur quod juvenis fiat prudens. Cujus causa est quia prudentia est circa singularia quae fiunt nobis cognita per experientiam. Juvenis autem non potest esse expertus quia ad experientiam requiritur multitudo temporis."[79] Hence, the more the cogitative knows concrete cases, and becomes skilful in going over them to discover elements of resemblance, and makes those concrete judgments of which we spoke above, the more will the intellect in turn become able to embody the general laws of the virtues in the concrete and the more will it come to the conclusion according to right reason to place a certain action or not, in this way or in that; in a word, the more will the individual conform his conduct to the *recta ratio agibilium,* that is, to prudence.

THE COGITATIVE AND PRUDENCE

But then prudence appears as a perfecting and a habitus, not of the spiritual intellect, as is commonly taught, but of the cogitative! If we limit ourselves to the commentary on the *Ethics,* we do indeed get that impression. Not only does St. Thomas note without objection that Aristotle attributes prudence to a sense which Thomas himself thinks is the cogitative,[80] but he even writes: "Ad istum sensum (interiorem scilicet) *magis* pertinet prudentia per quam perficitur ratio particularis ad recte existimandum de singularibus intentionibus operabilium."[81] And he draws the conclusion that beasts, because of the fact that they possess the estimative faculty, the parallel of our own cogitative, in some sort are endowed with this virtue of prudence, and he repeats this same idea not only in his commentaries on the *De Anima* and the *Metaphysics,* but also in his *De Veritate*.[82]

But on the other hand, when he treats of the basis of prudence in the *Summa Theologica,* St. Thomas does not take this same stand:

> Prudence does not consist in an external sense . . . but in an internal sense which memory and experience perfect in such a way that it may pass quick judgment on particular cases. This does not mean that prudence finds its principal subject in an internal sense. It exists in the reason first of all; it reaches this sense only *per quamdam applicationem.*[83]

What are we to make of this? Commenting on this article of the *Summa* Cajetan indeed admits that there is a difference on this point between St. Thomas, commenting on Aristotle, and St. Thomas, author of the *Summa,* and that we must seek the true Thomistic thought in the last named. As a matter of fact, the act of prudence is an intellectual act. We must doubtless know the concrete and individual in order to place it, but we must also know the universal. Yet the cogitative, because it is no more than a sensible faculty, is fundamentally incapable of any abstract and universal cognition. The intellect, however, undoubtedly has the universal as formal and direct object, but it also has a certain indirect and reflex knowledge of the singular material thing.

We would thus be wrong in thinking that the particular minor of the prudential syllogism is elaborated by the cogitative alone. Indeed not! An act of the intellect has its place here, but it is an indirect act of intellectual knowledge of the singular material thing. In this act, as in all other acts of this kind, the intellect turns itself back on the phantasm whence was drawn the intelligible species which put the intellect in act. This phantasm is the product of the cogitative, helped by imagination and memory. Besides, the human person, the single knowing subject, while it has the universal knowledge of the object—for instance, detraction—through the intellect, finds this same notion embodied in the phantasm which it reaches by means of the cogitative as perfected by memory and experience. In working out the prudential minor the cogitative can be said to serve as instrument to the intellect. St. Thomas is therefore correct in insisting that prudence first and above all perfects the intellect, and only secondarily perfects the cogitative. And just as a better tool in the hands of an artist will produce a better result, so a more experienced cogitative will enable the reason to perform acts of more consummate prudence. A person thus endowed will give wiser counsels, will be more just in his judgments, will act more opportunely. The law governing the relations between instrumental and principal cause will be active here; the statue is wholly the product of both the chisel and the sculptor; these acts of prudence, in the words of Cajetan, "principaliter sunt intellectus, ministerialiter autem cogitativae."[84]

This, then, is how the cogitative has a very special place in the act of prudence. Because of this part which it plays, most important among the senses and indispensable for the intellect, St. Thomas calls it not only *ratio particularis* but *intellectus* as well, implying a sort of higher dignity. We know that for the Angelic Doctor the intellect which knows first principles without any reasoning process is opposed to discursive *ratio* and is called *intellectus* in the strictest sense of the term, or *intellectus principiorum.*[85] Nevertheless these principles, specific objects of the *intellectus,* either implicitly or explicitly serve as starting points for the process of *ratio,* and are the last point to which the demonstration can be traced back. With this in mind St. Thomas, both in his *Summa* and in his commentaries on Aristotle, calls these first principles *extrema:* "Intellectus in utraque cognitione, scilicet tam in speculativa quam in practica, est

extremorum, quia primorum terminorum et extremorum a quibus scilicet ratio incipit."[86]

With these facts established, let us remember that in the prudential act the cogitative constructs the particular or singular minor. Now the cogitative knows the singular without any reasoning or discursive process and therefore passes upon it judgments which are "absolute," taking this word as synonymous for immediate judgments.[87] Again, the universal is taken from the singular by abstraction. This is already enough for this singular minor to be worthy of the name of principle, and consequently, extreme, especially as the practical intellect has these singulars as the goal of its processes. Which gives us the reason why St. Thomas, using a legitimate analogy, boldly transposes the term *intellectus* from the domain of the spiritual to that of the sensible and corporeal and applies it to the cogitative: "Sicut pertinet ad intellectum in universalibus judicium absolutum de primis principiis . . . ita et circa singularia vis cogitativa vocatur intellectus secundum quod habet absolutum judicium de singularibus."[88]

Nor is this all. The singular minor of the prudential syllogism aims at a practical conclusion, and therefore at an end, with which, if known formally as a minor, it is already full and pregnant. It may even be said that this minor itself expresses an end in this sense, not a universal end—the synderesis expresses this in the major—but a particular end embodied in the concrete act suggested by prudence, a particular end which is consequently a means judged apt to lead to the general end, either in the order of some virtue, such as justice, or simply in the order of human nature. It can therefore quite legitimately be said that the intellect which enters into the prudential act is a correct estimate of a particular end. And so, looking at it from another angle, this minor, inasmuch as it is a singular final cause, is worthy of the name of principle and extreme, and the cogitative which constructs it may be called *intellectus.*[89]

All of which enables us to conclude with Cajetan in his two-line commentary on the second article of the *Secunda-Secundae*, question forty-nine: "In articulo secundo, habetur quod prudentiae principium et conclusio est in cogitativa."[90] For it is from the singular minor, formed by the cogitative as we have explained, that the prudential act flows, and it is in a particular conclusion obtained through this same cogitative that the prudential act culminates.

CONCLUSION

It is now time to attempt to answer the questions we raised at the beginning of our study. What is the true part played by the cogitative? The cogitative is not merely the sense of the useful or the harmful, in the narrow meaning in which the examples so often repeated and, indeed, taken from the animal world would lead us all too easily to understand it. It is also, and in St. Thomas' opinion more so, perhaps, the sense of the individual grasped under the aspect of its reality as a concrete individual. The cogitative gathers this individual element, organizes it, and from it constructs experience in the order of technique as well as in that of

moral conduct enlightened by prudence. With good reason does P. Noble say of it: "It is the master faculty of practical people, of artisans, of people who know how to do things; it is the sense of fortunate discoveries, happy combinations, success in action."[91] Indeed it is with action, essentially individual, that the cogitative is particularly concerned. And since action is fundamentally nothing other than the incarnation of a tendency toward a concrete good, the cogitative, in spite of this broader concept of it, still remains the internal sense of the good proper to the individual, and consequently proper to the entire species.

As the sense of the individual, the cogitative—with the aid it receives from imagination and memory—is at the origin of the phantasm whence in the last analysis the universal concept will be drawn. It is also through the cogitative that the thinking subject, turning back upon these same phantasms, observes the continuity existing between the abstract idea and the phantasm on one hand, and on the other between the abstract idea and the real extrinsic object the perception of which has been furnished to it by the external senses. The cogitative is therefore a real liaison agent between the spiritual world of our ideas and the corporeal world of our senses. Consequently, the more exact the work of the cogitative, the keener can our intellectual knowledge become. This throws light on the statement of P.J. Webert, O.P.: ". . . it is a priceless instrument for the intellect, whether there be question of speculation or of action. It can be affirmed that there is no really powerful intellect, be it speculative or active, without a cogitative at once very swift and exact."[92]

If this is the case, it would be a mistake to follow Suarez[93] in considering the cogitative as a mere copy of the estimative of animals, a bit more perfected by reason of its proximity to reason. No doubt there is still truth in the proportion: the cogitative is to man what the estimative is to the animal. We must not for that reason forget the abyss created by intelligence between these two classes of beings, nor must we forget that as a result the cogitative is rightly called the particular reason and the intellect of the individual, both of which formulas, in St. Thomas' opinion, indicate the altogether special part played by this internal sense in our human intellection, a part which in no sense finds a parallel in the animal estimative.

One would also find himself on the wrong track if he were to identify the cogitative with instinct as the Moderns understand it. Take the definition of instinct given by W. James: "Instinct is usually defined as the faculty of acting in such a way as to produce certain ends without foresight of the ends and without previous education in the performance"; or, again, that found in the *Vocabulaire Technique et Critique de la Philosophie*, published by Andre Lalande: "The complex combination of exterior, determined, hereditary reactions, common to all the individuals of a same species and adapted to an end of which the being which acts is not generally conscious."[94] Let this concept be compared with the notion of the cogitative that resulted from our present study.

Instinct is a combination of external and internal cognitions, of appetites and local movements of all kinds; the cogitative is an internal faculty of cognition, and nothing more than that. Instinct implies no consciousness of an end to be

reached, or even, in many cases, of the means or movements useful to reach the end; the cogitative, on the contrary, is essentially founded on consciousness. Instinct, though not altogether impervious to improvement, remains, in all its essential elements, incapable of true progress. By its very nature the cogitative perfects itself in speed of action, sureness of vision, richness of experience, and thus prepares an ever more perfect instrument for intellectual progress. Instinct serves vegetative life in particular, and makes certain the development and conservation of the individual, and through him of the species. The cogitative, though it is far from being of no use whatever to this side of man, aims particularly at placing the inferior portion (vegetative and sensitive) at the service of the superior and rational portion, thus contributing to the good of the whole, the complete and ordered satisfaction of all the faculties of the human person.

Undoubtedly the cogitative can play its part in the domain of instinct, in the case of man. We saw that this was the case when we considered its relations with the sensible appetite and with the play of strictly spontaneous movements (the *primo-primi* movements of the scholastics). But it is more often outside of these so called instinctive movements that the cogitative exercises its action, and frequently removes whatever element of the instinctive there is in them and places them as quickly as possible under the domination of reason.

Does this mean that there is no point of similarity between the cogitative and instinct? Such a claim would be an exaggeration in the opposite direction. There are times when the cogitative throws such clear light on the conduct to be followed that it seems to have made impossible any intervention on the part of reflex and discursive reason. The action seems altogether spontaneous, prepared in no wise by experience or education. In such cases men speak of instinct, but, as is evident, in a sense quite different from that in which biologists and psychologists speak of instinct. La Rochefoucauld speaks in this sense when he says: “Some there are who by a kind of instinct whose cause they ignore make decisions on what is presented to them and always decide for the right thing.”[95] The truth is that such decisions must be attributed to a quick and exact view taken of concrete situations, a view which is that of the intellect, but prepared by a cogitative naturally placed in ideal conditions.

The cogitative then, not reducible to instinct or to imagination and memory, remains, in the twentieth as well as in the thirteenth century, an authentic part of the eternal human psychism. Not only is there no question of relegating it to the museum of antiquities, but it must take up again in our psychology the place so generously marked out for it by St. Thomas Aquinas.

It is true that the Moderns know nothing about this cogitative. But what does that prove? It proves nothing, absolutely nothing, against its existence and its nature. In fact, we might expect them to know nothing about it, considering the purely experimental and positive, not to say positivistic direction which psychological studies since the nineteenth century have chosen to take. As a faculty, the cogitative does not fall within the scope of positive science. As for its operation, it is so easily confused on the one hand with that of the

imagination and memory, by which it is always helped, and on the other with that of the intellect, behind which it hides, as it were, that minds with a bias for observed facts would naturally fail to single it out. Add to that the anti-metaphysical prejudices with which Auguste Comte has imbued the minds of our era. It was quite natural, then, that the cogitative should be branded as one of those metaphysical entities, those personified abstractions for which the positivistic mind can never find enough scorn. It is high time to realize, as P. Webert, O.P., put it so well in the passage already quoted[92] that:

> in a Thomistic theory of the internal senses there are two faculties (the sensus communis and the cogitative), which have been laid aside in favor of their connected faculties, the imagination and the memory, which hold the principal roles. Because they are faculties of synthesis, both of them, and not powers of mere repetition, their nature is subtle enough to pass unnoticed. But from the fact that they reintegrate in sensible cognition a synthetic function, the study of them once developed cannot fail to put back into this cognition a unifying principle of which recent observations give no hint.

On this point as well as on many others Thomism, understood in all its breadth, might give satisfaction to minds left unsatisfied by the too purely material progress of our time.

Notes

1. To the scholastics of the thirteenth century, "instinct" was not the complex function of modern psychology but a blind drive of nature toward an action to be performed. It was opposed to the cogitative. *Cf. S. T.,* I. 78. 4.

2. These examples will be found in the following passages, which also constitute the principal sources of the doctrine with which we shall be concerned.

Albert the Great, *Opera Omnia* (Borgnet ed., Paris: 1890); *De Anima,* III, Tr. 1, c. 2 (vol. V, p. 317a); *Summa Philosophiae Pauperum,* pars V, *Isagoge in de Anima,* the authenticity of which is uncertain (vol. V, pp. 521-522); *Liber de Apprehensione,* also doubtful, pars III, n. 10 (vol. V, p. 581) ; *Comp. Theol. Verit.,* equally doubtful, II, c. 38 (vol. XXXIV, p. 65a) ; *Summa de Creaturis,* p. II, q. 39, "De virtute aestimativa" where in four articles Master Albert asks himself: Quid sit virtus aestimativa, quod sit objectum ejus, quod organum ejus et quis actus? (vol. XXXV , p. 336)— note in this text the twofold arabic origin of this doctrine.

St. Bonaventure, *Comp. Verit. Theol,* II, c. 38 (Vives ed.), vol. VIII, p. 106. St. Thomas, *De Ver.,* 25. 2; *Quaest. de An.,* art 13; *In II de An.,* lect. 13 (Marietti ed.), #398; S. T., I. 78. 4; S. T., I. 81. 3; *Opuscula omnia St. Thomae, De Potentiis animae,* c. 4 (Mandonnet ed.), vol. V. (The *De Potentiis animae* is not authentic as an opusculum, but is nothing other than a compounding of texts taken from other Thomistic works of clear authenticity.)

Sylvester de Sylvestris, *Commentarium in Summa Contra Gentiles,* II . 60, n. 1 (Leonine ed., vol. XIII), p. 423a.

As for the later scholastics such as Suarez and John of St. Thomas, they work over the traditional examples. The same may be said of the scholastics of the present time, with the exception of some who strive to put new life into the material by attributing to the human aestimative and cogitative the faculty of "fore-seeing danger" (Collin), of being the basis for certain sympathies or antipathies for which a rational explanation cannot be found (Hugon, II, p. 568) ; and a Canadian author, M. Filion (a Sulpician Father), writes: ". . . ita antiqui incolae regionum nostrarum qui Indi vocantur, mirabilem aestimative activitatem ostendebant, ad quam pervenerunt etiam albi homines [he is probably talking about the trappers], qui vitam eorum imitati sunt." *Cf.* Emile Filion, *Elementa Philosophiae* (Montreal: 1938), vol. I I , pp. 251-252.

3 "Omne habens sensum habet desiderium cibi quod est fames." Albert the Great, *De Anima,* III, *loc. cit.*

4 *De Ver.,* 25. 2. *supra cit.*

5 *Cf. De Pot. An., supra, cit.,* and *S. T.,* I. 78. 4.

6 *Cf.* Albert the Great, *Liber de Apprehensione, loc. cit.*

7 *Cf. S. T.,* I. 78. 4.

8 *Cf.* St. Bonaventure, *loc. cit.,* and Albert the Great, *De Anima,* III. Tr. 1, c. 2 (vol. V, p. 317).

9 Here are a few texts which throw light on this statement:

St. Albert the Great, "Aestimativa est virtus sequens phantasiam et diversa ab ipsa et est determinans imitationem vel fugam in intentionibus apprehensis; quae, inquam, intentiones conjunctae sunt compositioni et divisioni phantasmatum, non tamen sunt acceptae a sensibus." *Summa de Creaturis, loc. sit.,* a. 1, sol.

"Est autem aestimativa virtus transcendens quia apprehensio sua non est formarum sensibilium et materialium sed immaterialium; bonitas enim et malitia, conveniens et inconveniens et nocivum in se non sunt formae materiales, neque in sensu cadentes exteriori, tamen sunt accidentia sensibilium: et horum est virtus aestimativa." *Philosophia pauperum, loc. cit.,* (vol. V, p. 521a). *Cf.* also *De Anima,* III (vol. V , p. 317a) ; *Liber de Apprehensione, loc. cit.* (vol. V, p. 521a).

St. Thomas, "Vis aestimativa per quam animal apprehendit intentiones non acceptas per sensum, ut amicitia et inimicitia, inest animae sensitivae secundum quod participat aliquid rationi." *De Ver.,* 25. 2. *Cf.* also *In III Sent.,* d. 26, 1. 2; *Quaest. de An.,* art. 13; *S. T.,* I. 78. 4;

St. Bonaventure, *Comp. Verit. Theol,* II, c. 38 (Vives ed.), vol. VIII, p. 106.

10 *S. T.,* I. 74. 4.

11 For the full proof of this statement, *cf.* my article, "Faut-il encore parler de facultés de l'Ame?" *Revue de I'Université d'Ottawa* (April, 1940), sect, spec, pp. 111-144.

12 *Cf.* Suarez, *De Anima,* lib. III, "DePotentiis cognoscitivis," c. 30, n. 7 (Vives ed., 1856), p. 705a.

13 *S. T.,* I. 78. 4 ad 5.

14 Concerning this principle of contiguity, *cf.* my work *Intellectus et Ratio selon saint Thomas d'Aquin* (Paris, Ottawa: 1936), pp. 180-181.

15 *Cf. De Ver.,* 14. 1 ad 9. This same doctrine is also taught in the *In III Sent.,* d. 23, 2. 2. sol. 1 ad 3; and in the *In II de An.,* lect. 13 (Marietti ed.), n. 397.

16 *Cf. In I Sent.,* d. 3, 4. 5.

17 *Cf. S. T.,* II-II. 2. 1.

18 *Cf. In III Sent.,* d. 23, 2. 2. sol. 1 ad 3. For this entire question of the meaning of *cogitare* in St. Thomas and its doctrinal origins, *cf.* my *Intellectus et Ratio* referred to

above, pp. 86-90. Worthy of note is the fact that Alexander of Hales in his *Summa Theologica,* pars I, lib. II, inquisitione IV, Tr. I, sect. 2, q. 2, tit. 1, membrum 2 (Critical edition of Quarrachi, 2 vol., p. 453a), where he treats of the cogitative, writes: "ad 2: . . . licet fiat secundum imprium rationis, non tamen in parte intellectiva, sed in parte sensitiva quae suadetur ratione. Et licet cogitare secundum appropriationem dictum sit partis rationis, nihilominus per extensionem illius partis quae rationi copulatur; unde cellula media dicitur logistica, *i.e.* rationalis, in qua operatur ilia excogitativa." It is clear how, unlike St. Thomas, he derives the name of *cogitative* from reason to the internal sense.

19 *S. T.,* I. 78. 4c. This fact that the cogitative in man corresponds to the estimative in animals is again taught in *Sum. c. Gent.,* II. 60 (quoting Averroes). *Cf.* also *Quaest. de An.,* art. 13; *In II de An.,* lect. 13, n. 397. This is also the position taken by Suarez in *De Anima, loc. cit.,* n. *7.*

20 According to this theory there would be in the human brain three "cells" or "concavities." The first would contain the organ of the *sensus communis* or sensible consciousness and of the imagination; in the second, called the syllogistic cell, would be the organ of the cogitative, or, to be more exact, this organ would be in the upper portion of this middle section; the organ of the memory would be found in the third cell. This is the idea accepted in the thirteenth century by Alexander of Hales, St. Albert the Great, and St. Thomas. We find it again with Sylvester de Sylvestris in the sixteenth century and with John of St. Thomas in the seventeenth. For this topography of the brain as the ancients conceived it, consult especially Albert the Great in the *Summa de Creaturis* pars II, the third article of questions 35, 37, 38, 39, 40, where the author raises in turn the question of the organ of the *sensus communis,* of the *imaginativa,* of the *phantasia,* of the *aestimativa,* and of the *memoria.* The authors quoted are for one part St. John Damascene and St. Gregory of Nyssa, and for the other Algazel and especially Avicenna, together with a *Liber de Differentia Spiritus et Animae* attributed to a certain "Constabulus," whom I am unable to identify.

21 *Quaest. de An.,* art. 13.

22 The fundamental text here is *S. T.,* I. 78. 4, followed by all Thomists, and forms the basis of the Thomistic vulgate on the question as taught in any manual *ad mentem St. Thomae.*

23 *Cf. Quaest. de An.,* art 13, and *S. T.,* I. 73. 3.

24 *Cf*. Cajetan, *In I S.T*., q. 78. a. 4. n. 5 (Leonine ed.), vol. V, p. 257b. This is indeed the way that Suarez understood it: "Quarta opinio, quae inter citatas probabilior habetur, duplex fundamentum habet. Primum: cognitionem sensitivam interiorem aliam fieri per species sensatas aliam per non sensatas, ac potentias per eas cognoscentes esse diversas: siquidem potentiae cognoscentes per diversarum rationum species, diversas esse oportet." *loc. cit.,* n. 9.

25 *Cf.* Suarez, *loc. cit.,* p. 708, n. 15.

26 "Oportet igitur quod sicut intellectus practicus se habet ad speculativum, ita se habeat aestimativa ad imaginationem." St. Albert the Great, *De Anima,* III, *loc. cit.* (vol. V, p. 317a). "Differt intentionem illam accipere per modum veri speculativi tantum, et accipere eamdem per rationem appetibilis vel detestabilis. Et primo intentionem accipit phantasia, secundo modo aestimativa." *Summa de Creaturis,* II, pars la, q. 39, a. 1 ad 1.

Suarez replies, ". . . negatur judicium practicum et speculativum fieri a potentiis diversis, cum melius multo fiant ab eadem, uno scilicet in altero fundamentum habente." *loc. cit.,* n. 15, p. 708b.

As for Thomas' view, his article in the *Summa,* I. 79. 11, is too well known to need quoting: “Intellectus practicus et speculativus non sunt diversae potentiae.”

26a. *Cf*. John of St. Thomas, *Cursus Philosophicus* (edited by Reiser, O.S.B.), vol. iii, Philosophia Naturalis, p. IV, q. 8, “De sensibus internis,” art. 1, p. 244.

27 *Cf. S. T.,* I. 78. 4, and John of St. Thomas, *op. cit.,* pp. 249b-250a.

28 John of St Thomas, *op. cit.,* p. 250a-b.

29 It would be well to read again at this point the *Quaest. de An.,* art. 13, where the entire question of the specific distinction of the faculties is very fully explained; then *S. T.,* I. 78. 3, where the principles of the distinction of the exterior senses is laid down: “Exterius ergo immutativum est quod per se a sensu percipitur et secundum cujus diversitatem sensitivae potentiae distinguuntur.” And lastly *S. T*., 1. 78. 4, on the distinction between the imagination and the *sensus communis.*

30 This is why I see no need of tarrying here on the discussion that is rife among scholastics concerning the origin of these species. It is an analogous problem and one as obscure as that which moderns call the problem of the origin of instinct. Those interested in the question will find worthwhile matter in the *Psychology* of Remer-Geny, S.J. (Rorne: 1925), pp. 115-116, and the whole treatise in John of St. Thomas, *op. cit., ibid.,* art. 4, pp. 265-271.

31 *Cf*. *De Potentiis Animae* (Mandonnet ed.), vol. V, p. 355; *S. T.,* I. 78. 4, and the commentary of Cajetan.

32 *Cf. Quaest. de An.,* art. 13; *S. T.,* I. 79. 6.

33 *Cf. S. T.,* I. 78. 4. *supra cit.*

34 “Cujus signum est, quod principium memorandi fit in animalibus ex aliqua hujusmodi intentione, puta quod est nocivum vel conveniens.” *Ibid.*

35 *Ibid.,* and also *Quaest. de An.,* art. 13. The same idea is put more explicitly in *De Memoria et Reminiscentia,* lect. 2 (Pirotta ed.), n. 321.

36 *Cf. S. T.,* I. 78. 3.

37 *Cf*. *De Memoria et Reminiscentia, loc. cit.;* also *S. T.,* I, 78. 4; John of St. Thomas, *Cursus Philosophicus, loc. cit.,* p. 245a.

38 May I be permitted to call attention in this connection to the fact that St. Thomas’ position in relation to the science of his time is fundamentally the same as that of the philosophers of our own time in relation to the science of today. Just as is done today, the great masters of scholasticism used to consult the scientists and doctors of their time. If mistakes were made it is the scientists and not the philosophers who are to blame. Six hundred years from now, what will our great, great nephews think of the scientific data of today over which thinkers take such pride?

39 Sertillanges, O. P., *Saint Thomas d'Aquin* (Paris: 1925), vol. II, p. 136.

40 *Cf*. *Quaest. de An.,* art. 13.

41 For the development of this idea and its justification *cf.* my article, “Comme être thomiste,” *Divus Thomas* (Piacenza: 1932), pp. 260-262.

42 *Cf.* especially *Sum. c. Gent.,* II 60 *passim,* 73 *passim.* These chapters should be quoted in their entirety. We shall quote only *In VI Ethic.,* lect. 9 (Pirotta ed.), n. 1249: “. . . vim cogitativam sive aestimativam quae dicitur ratio particularis. Unde hic sensus vocatur intellectus qui est circa sensibilia vel singularia. Et hunc Philosophus vocat in tertio *de Anima* intellectum passivum, qui est corruptibilis.” We shall come across these passages again.

43 *Cf.* among other passages: *In II Sent.,* d. 23, 2. 2. sol. 1 ad 3; *In III Sent.,* d. 26, 1. 2; *In II de Anima,* lect. 13 (Pirotta ed.), n. 396; *In VI Ethic.,* lect. 1, n. 1123; *In I Meta.,*

lect. 1, n. 15; *Sum c. Gent.,* II. 60. n. 1; *Quaest. de An.,* art. 13; *S. T.,* I. 78. 4, and I. 81. 3; *De Potentiis Animae,* c. 4 (Mandonnet ed.), vol. V , p. 355.

44 *Cf.* my *Intellectus et Ratio selon saint Thomas d'Aquin,* pp. 90-92.

45 *Cf.* in particular *In VI Ethic.,* lect. 9, n. 1255.

46 *S. T.,* I. 78. 4.

47 *Cf. In III Sent,* d. 23, 2. 2.

48 *Cf. In VI Ethic.,* lect. 9. n. 1255.

49 *Cf. Sum. c. Gent,* II. 73, n. 15; and 60, n. 1.

50 Suarez, *De Anima,* c. 30, "De numero sensuum internorum," n. 7 (Vives ed., Paris: 1856), vol. III, p. 705a.

51 *Cf.* for example. *Sum. c. Gent.,* II. 73, n. 16.

52 *Cf. In II de Anima,* lect. 13 nn. 395-398.

53 *Cf.* Palhoriès, *La philosophie au Baccalauréat* (Paris: 1936), vol. I, p. 461.

54 There is indeed something like this in *In VI Ethic.,* lect. 1, n. 1123, but it is far from being as explicit.

55 *Cf*. *Sum. c. Gent.,* II. 60, 73, 75 et 76 passim. Each of these chapters should be read carefully.

56 *Cf.* Aristotle *De Anima,* c. 5, 430a24-25. This is the translation given in the *antiqua versio* which St. Thomas used: "separatus autem (intellectus) est solum hoc quod vere est. Et hoc solum immortale et perpetuum est. Non reminiscitur autem quia hoc quidem impassibile est. *Passivus autem intellectus est corruptibilis et sine hoc nihil intelligit anima.*" St Thomas comments on this passage: *In II De Anima,* lect. 10 #743-745.

57 *Cf*. the entire first paragraph of *Sum. c. Gent.,* II. 60, too long to be quoted here and easily available to all. Less available is the Averroes text. The Leonine edition of the *Summa contra Gentiles* (vol. XIII, p. 419) gives this reference to Averroes: *In III De Anima,* text 20, ad cap. V, 2. I had at hand an edition of 1521, printed at Pavia *cura ac diligentia soleritis viri Jacob Paucidrapii de Burgofranco.* In this edition we read the following: ". . . et sunt tres virtutes in homine quarum esse declaratum est in Sensu et Sensata, scilicet et imaginativa et cogitativa et rememorativa istae enim tres virtutes sunt in homine ad praesentendam formam rei imaginatae quando sensus fuerit absens et ideo dictum fuit illic quod cum istae tres virtutes adjuverint se ad invicem forte representabunt individuum rei secundum quod est in suo esse. . . . Et indendebat hoc per intellectum possibilem formas imaginationis secundum quod in eas agit virtus cogitativa propria hominis. Ista enim virtus est aliqua ratio et actio ejus nihil est quam ponere intentiones formae imaginationis cum suo individuo apud rememorationem aut distinguere eas ab eo apud formationem. Et manifestum est quod intellectus qui dicitur materialis recipit intentiones imaginatas post hanc distinctionem. Iste igitur intellectus possibilis necessarius est in formatione."

58 *Cf*. *loc. supra cit.,* #745

59 *Cf*. *In VI Ethicorum,* lect. 9 #1249.

60 *Cf*. *Sum. c. Gent.,* II. 60 n. 2., and cf. also the example in 73 n. 16, 17 and 18.

61 Cf. *Sum. c. Gent.,* II. 76 n. 11. And also in 73 n. 18 where St. Thomas had already written: "Virtus cogitativa non habet ordinem ad intellectum possibilem quo intelligit homo nisi per suum actum quo praeparantur phantasmata ut per intellectum agentem fiant intelligibilia in actu et perficientia intellectum possibilem."

62 Cf. *Sum. c. Gent.,* II. 73 nn. 27, 28 and 29.

63 Cf. Aristotle *De Anima,* II, 9, 421a25; *In II De Anima,* lect. 19 #485.

64 Cf. *Sum. c. Gent.,* II. 73, *supra cit.* This commentary will be found in the Leonine edition of the *Summa contra Gentiles* (vol. 13, p. 466, xi, n. 2 and 3). I give here the

thought of Ferrariensis, but to understand it fully we must remember both the theory of the instrumental cause and the explanation given by Thomists to make clear the collaboration of Phantasms with the action of the agent intellect. To explain all this did not enter into the scope of my present subject.

65 Cf. *Sum. c. Gent,* II. 74 (Leon, ed., vol. XIII, p. 472).

66 Cf *In I Meta.,* lect. 1 #15 (Pirotta ed.).

67 *Ibid.,* #19.

68 Aristotle, *Meta.,* I, c.1, 980b29-981a5.

69 Cf. *In I Meta., loc. supra, cit.,* #18. Concerning this text of St. Thomas let it be noted that the word *experientia* renders the Greek ἐμπειρία, *experimentalis scientia* corresponds to τῆς ἐμπειρίας ἐννοημὰτων, literally *ex multis conceptionibus experimentis.* The word *science* should not be made too much of.

70 *Ibid.,* #22.

71 *Ibid.,* #29. Note in this text the use of the word opinion, to express an assent given to what is contingent and singular.

72 This, after all, is the classic distinction between *factibilia,* with which what I have called technique is concerned, and *agibilia,* the work of action inasmuch as it is moral and prudent.

73 Cf. *S. T*., I. 81. 3.

74 Cf. Cajetan's commentary on *S. T.,* I. 81.3. It is rather interesting to note that of all the parallel passages in which St. Thomas speaks of the domination of the rational part over the sensitive this text of the *Summa* is the only one in which he introduces the cogitative.

75 Cf. *S. T*., II-II 47. 3.

76 Cf. *In VI Ethic,* lect. 6. #1194.

77 Cf. *In VI Ethic,* lect. 9 #1249.

78 Cf. *S. T.,* II-II. 47. 3 ad 3. “Prudentia non consistit in sensu exteriori . . . sed in sensu interiori, qui perficitur per memoriam et per experimentum ad prompte judicandum de particularibus expertis.”

79 Cf. *In VI Ethic,* lect. 7 #1208.

80 Cf. *In VI Ethic,* lect. 9 #1249 with its reference to the Greek text: c. 8, 1242a30. I am attempting to present St. Thomas’ and not Aristotle’s opinion in my text. It would seem that the medieval Doctor here differs from the real opinion of the Stagirite. This is all the more probable as in the opinion of Susemihl the Greek text here has been altered. Cf. *Arstotelis Ethica Nicomachea,* ed. Fr. Susemihl—O. Apelt (Leipzig: Teubner), p. 135. Note line 30.

81 Cf. *Ibid.,* #1215.

82 Cf. *In III De Anima,* lect. 4 #644; *In I Meta,,* lect. 1 #11; *De Ver.,* q. 15, a. 1; q. 24 a. 2; q. 25 a. 2.

83 Cf. the text quoted above in note 24 which goes on as follows: “Non tamen ita quod prudentia sit in sensu interiori sicut in subjecto principali, sed principaliter quidem est in ratione, per quamdam autem applicationem pertingit ad hujusmodi sensum.”

84 Cf. Cajetan, *In II-II S. T.,* q. 47, a, 3 (Leon. ed.), vol. VIII, p. 351.

85 Cf. my book *Intellectus et Ratio selon saint Thomas d'Aquin,* which takes this idea for its principal thesis; especially to be consulted are Part II , c. 3; and Part III, c. 2.

86 Cf. *In VI Ethic,* lect. 9 #1247.

87 This term, absolute judgment, is a technical term in St. Thomas used to designate the angelic cognition inasmuch as it proceeds without *discursus* or reasoning; he

applies it to our human cognition to designate the act of our *intellectus.* Cf. *my Intellectus et Ratio* quoted above, p. 47.

88 Cf. *In VI Ethic,* lect. 9 #1255, already quoted a number of times.

89 Cf. *S. T.,* II-II. 49. 2. The same doctrine in ad 3 and in the commentary of the passage quoted by the *Summa* (Pirotta ed.), #1248.

90 Cf. Cajetan's commentary on this text of the *Summa* (Leon, ed., vol. VIII, p . 368).

91 Cf. Noble, O.P., *La Prudence,* French translation of the *Summa Theologica,* II-II, q. 47 to 52, explanatory notes on q. 47, a. 3, p. 243 (Paris: 1926).

92 Cf. J. Webert, O.P., *l'ame humaine,* French translation of the *Summa Theologica,* I, q. 75-83, technical notes, p. 383 (Paris: 1925).

93 Cf. Suarez, text quoted above, note 50.

94 Cf. William James, *The Principles of Psychology,* II (New York: 1890), p. 382, and Lalande, *Vocabulaire,* art. instinct.

95 de la Rochefoucault, *Maximes Diverses,* c. 10, "On Taste."

Center for the Study of Digital Life

Dianoetikon 1 (2020): 111-138

THE INWARD WITS: PSYCHOLOGICAL THEORY IN THE MIDDLE AGES AND THE RENAISSANCE

E. Ruth Harvey
University of Toronto

Originally published in 1975 by The Warburg Institute, London.
[Selection by Peter Berkman]

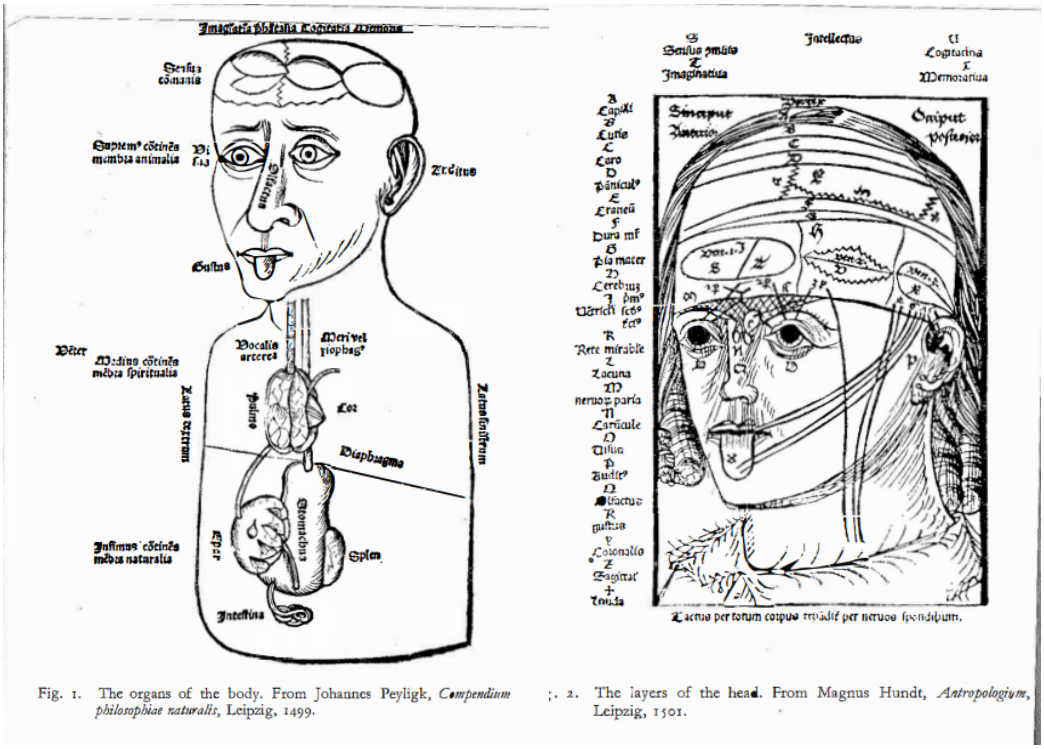


Fig. 1. The organs of the body. From Johannes Peyligk, *Compendium philosophiae naturalis*, Leipzig, 1499.

Fig. 2. The layers of the head. From Magnus Hundt, *Antropologium*, Leipzig, 1501.

University of Toronto medievalist E. Ruth Harvey's 1975 study "The Inward Wits: Psychological Theory in the Middle Ages and the Renaissance" is noteworthy due to its tracing of the doctrine of the inner senses (or "inward wits") within the context of medieval medicine. In the 10th century treatise The Royal Book written by the Persian court physician Haly Abbas and translated into Latin in the 12th century as Regalis dispositio, Harvey finds an exemplary instance of the medieval medical concern to foster a working harmony between body and soul in the "hybrid" human disposition. Correlating bodily functions and organs to the hierarchical formation of three levels of "spirit" – the natural spirit (liver and veins), vital spirit (heart, arteries, respiration, and passions), and animal spirit (brain and nervous system) – Haly holds that it is mens, the highest power of the animal spirit, which comprises phantasia, cogitatio, and memoria, each of whose impairment is

implicated in distinct bodily and mental conditions. Haly's account, Harvey notes, represents the model of human physiology accepted by medieval learning; descriptions of the inner senses of phantasia, cogitatio, and memoria (along with the Aristotelian sensus communis), would be taken up, refined, and debated upon, by the Arabian philosopher Avicenna and, later, Thomas Aquinas, the latter of whom would accept much of Avicenna's commentary, but reject his dissociation of the intellectus agens from material perception.

THE INWARD WITS

In the second book of the Faerie Queene (1590), Edmund Spenser describes Sir Guyon's entertainment at the castle of Alma, a stately building of earth inhabited by a noble lady dressed all in white. The lady shows Guyon her home, taking him to the kitchen, the parlour, and lastly to the turret where her three counsellors live, each in his own room. The first is *Phantastes*, who looks into the future; he is never idle, and never rests. His room is extraordinary:

> *His chamber was dispainted all within,*
> *With sundry colours, in the which were writ*
> *Infinite shapes of things dispersed thin;*
> *Some such as in the world were never yet,*
> *Nor can devised be of mortall wit;*
> *Some daily seen, and known by their names,*
> *Such as in idle fantasies do flit:*
> *Infernal hags, Centaurs, Fiends, Hippodames,*
> *Apes, Lions, Aegles, Owles, fooles, loners, children, Dames.*[1]

This room appears to be filled with buzzing flies, swarming like bees:

> *All those were idle thoughts and fantasies,*
> *Devices, dreams, opinions unsound,*
> *Shows, visions, sooth-sayes, and prophesies;*
> *And all that feigned is, as leasings, tales, and lies.*[2]

In contrast to the staring, melancholy *Phantastes*, who looks as if he is mad, the next counsellor appears to be full of sound knowledge and ripe wisdom [*Cogitatio*, or "thought"]. His walls are painted with pictures of judgement and philosophy, arts and sciences, 'and all that in the world was aye thought wittily'. The third counsellor is a very old man, whose room is crumbling with age, and hung with ancient scrolls and records. The old man is called *Eumnestes*, and he remembers everything:

This man of infinite remembrance was,
And things foregone through many ages held,
Which he recorded still, as they did pass,
Nor suffered them to perish through long held,
As all things else, the which this world doth weld,
But laid them up in his immortal shrine,
Where they forever incorrupted dwelled.[3]

A little boy helps Eumnestes by searching for things, and fetching them for him.

These three counsellors who advise Alma on the government of her earthen castle could also be called *phantasia*, *cogitatio*, and *memoria*; they are 'inward wits', the human powers which occupy the area between the body and the soul [or, intellect]. Spenser is describing a traditional psychological theory, resting on the medieval commonplace that man belongs to two worlds: the external material world into which he is born, and the higher world of intellect and truth, inhabited by immaterial beings, to which he may attain. The inward wits stand at the point of communication between these two worlds in man, between the body and the soul, the realm of sense, and the realm of intellect. They fill a gap in the medieval scheme of things. It is the history of the theory of the inward wits which is the subject of this survey.

A convenient summary of the medieval scheme of things is provided by Nemesius, bishop of Emesa in Syria at the end of the fourth century. His short book in Greek, *On the nature of man* (frequently ascribed to Gregory of Nyssa), was translated into Latin twice during the Middle Ages, and both Thomas Aquinas and Albertus Magnus made use of it. [4] Nemesius begins his account with a description of man the microcosm. Man is made of an intellectual soul joined to a body made of the four elements, the basic units of matter. In common with the plants, he has the powers of growth and generation; and, like the animals, he has in addition voluntary motion, passions, and the powers of breathing and sensation. Man's reason links him with incorporeal and intellectual beings like the angels, and like them too he has the ability to pursue virtue, and the desire for beatitude. Just as the magnet links the realms of element and plant, and the mussel and sponge bridge the division between plant and animal, man joins the visible to the invisible, the sensitive to the intellectual; but he also contains within himself some qualities of them all. Man's own particular distinction is that he is the only one of God's rational creatures to obtain pardon for the sins he commits, for God in his mercy takes into account the burden imposed on the rational soul by a body which is made of elements, and possessed by the irrational desires of the beasts. Each individual man should by his reason rule justly over his bodily faculties; and, in the same way,

the human race should rule over the whole of the lower creation, which was made for its benefit. No truly good man can be harmed by a lower nature: thus the lions spared Daniel, and Paul was not harmed by the serpent's venom. If the microcosm is rightly ordered, the macrocosm serves it. Nemesius brings his chapter to conclusion, marvelling at the perfection of the scheme of the universe, and man's unique position within it:

> These things considered, who is able to commend sufficiently the nobility of this living creature? Behold, he bindeth together in himself things mortal and immortal; and knitteth up in One, things reasonable and unreasonable. In his own nature, he beareth the image of all creatures, and from thence is rightly called a 'little world'.[5]

These commonplaces are repeated endlessly throughout the Middle Ages. On the comprehension of man's middle state and hybrid nature depended moral doctrine and philosophy; all learning properly took its starting point from man.[6] Man is a rational animal; his reason sets him on a higher level than the beasts, yet he is an animal, and has some need for an animal body and animal powers. His body is mortal because it is a compound which tends to decay into its elements. His rational soul is immortal, and was created for a nobler end: it has needs which must be satisfied if it is to achieve happiness, yet these needs sometimes conflict with those of the body to which it is mysteriously bound.

The 'chain of being' in which Nemesius places man extends upwards from the lowest of creation to the Creator. [7] It may be regarded in two ways: as a progress from the material to the immaterial, and from the insentient to the intelligent. Lowest of all is matter, without form, and insentient. Then there are the elements, which have the four properties: heat, cold, moisture and dryness. The elements are organised into plants, and these are complex enough to have simple life; then, with increasing complexity of organisation, come the higher kinds of life, until in man the boundary between the material and the incorporeal is reached. Man's animal spirit is the subtlest kind of matter, and his soul is the lowest kind of purely immaterial substance. In the same way, man's powers of sensation and perception are shared with the higher animals, but his reason, while being the lowest kind of intelligence, is held in common with the angels. Nemesius has indicated with his examples of magnet and mussel that the macrocosm contains infinite gradations of being; and in this, as in all things, the microcosm resembles it. The transition from material to immaterial, from non-rational to rational within man takes us into the chambers of the inward wits,

where the finest kind of all matter, the animal spirit, performs its subtle operations. It was at this point that the soul and body met, although the borderline of the unbodily and the bodily was difficult to define. The attempt to define it, and the traffic across it, was made chiefly by two classes of writers: the philosophers, in their enquiries into the nature of reason and knowledge, approach it from the side of the soul; they ask how the soul is affected by the information supplied by the body, and by the demands it makes. The other group, the doctors, are led to it by their search for the causes of the afflictions of the body, and by their examination of the effects of injuries. Both medicine and philosophy contributed to the final formulation of the idea of the inward wits; but the idea developed differently in the two disciplines. Since medieval philosophers accepted the information provided by the doctors as proven fact, it will be more convenient for our purposes to begin with the medical aspect of the sensitive powers. The doctors dealt primarily with man's body, treating it as an unstable compound to be preserved as long as possible by means of their art; their writings indicate the limit they set to the material constitution of man, and show how far they were prepared to encroach upon the soul in their treatment of mental disorders.

HALY ABBAS (d. 944/5)[8]

Haly Abbas is the usual Latin rendering of the name of 'Ali ibn al-Abbas al-Majusi, the court physician at Shiraz. His last name, 'the Magian', indicates that he, or his father, was a Zoroastrian. His master, the Buwayhid ruler Adud al-Dawla, an amir who held the real power in Persia during the rule of a puppet caliph, showed great interest in medical affairs, and completed in 982 a great new hospital in Baghdad. Haly Abbas wrote for him his work Kitab al-Maliki (*The Royal Book*), described by the ancient Arabian historian al-Qifu as 'a splendid work and noble thesaurus comprehending the science and practice of medicine, admirably arranged'.[9] Constantine the African (d.1087) translated part of it into Latin; entitled *Pantegni*, it often passed under his own name. A complete version was made by Stephen the Philosopher; he finished it in 1127 and called it *Regalis dispositio*; this is the text published at Venice in 1492.

The 'admirable arrangement' of *Regalis dispositio* is its most striking feature. Haly was very proud of it: he intended his book to be the last word in medicine, and he wrote several prefatory chapters to make this clear. First of all he criticises all his predecessors in the art: they are without exception found wanting. Hippocrates is obscure from excessive brevity. Galen wrote much, but

he was led into prolix sophistries by the enemies of truth. Oribasius omits too much, and Paulus is deficient; so too are Messius and Johannes son of Serapion. Razes is too concise in his shorter work, and although in his *Liber continens* he omits only the elements, complexions, humours, and the explanation of the powers of limbs and spirits, the work has no method, and it is much too big to copy. Haly's own work will contain everything necessary, and it is therefore going to be the most useful. The arrangement is the author's own, who in chapter three names himself, lest any misunderstanding arise: *hali filius Abbas magi, medicine discipulus habimeher mousi filii sciar, misereatur ei Deus!*

The criticism of Razes makes it evident that Haly is much more interested in causes than effects, for what he objects to is Razes's restraint with regard to the undemonstrable. Haly takes a wider view of the extent of the physician's province and responsibilities: in the chapter 'On the excellence of the Art of Medicine', he claims that the doctor is the noblest of men because he makes intellect possible.

> But indeed, no wise man, nor even one of small intellect, can doubt the excellence of the art (most excellent of all the arts), the greatness of its value, and the need all men have of it. For since man is higher and nobler than all other living beings by virtue of his own God-given reason, that is, his mind (animus), by which he has discretion and cognition of things, he must tum to it in all the necessities of human self-government, and in the actions and other works necessary for life, that men may obtain benefits in this world and glory at last. But there can be no mind without the health of the rational soul, and the health of this is obtained only when the vital soul and the natural soul are healthy, nor can either of these be healthy without a healthy body, and this comes about from the balance of the humours. The balance of the humours comes only from a balanced complexion, which cannot exist perfectly without the rules of the art of medicine, by means of which health is preserved in the healthy, and is restored when it has been lost. Since these things are so, the art of medicine is necessarily held to be more excellent and greater than the other arts, because of the value of health and soundness, without which it is quite impossible to perfect the state of man.[10]

This statement is an explicit declaration of the medical scheme of things: the abiding and fundamental importance of this most noble of arts is to enable the mind to work perfectly in conjunction with the body, to perfect the state of man

the hybrid. The book *Regalis dispositio* works out this scheme in detail: according to Haly's admirable order, it works up from the elements to the threshold of the ruling mind.

The work is divided into two parts, the theoretical and the practical, and each of these contains ten books. The ten theoretical books are divided into 'things natural' (I-IV), 'things not natural' (V), and 'things outside nature' (VI-X). 'Things natural' comprise everything that makes up the human body: elements, humours, members, and spirits, to follow the order from lowest to highest. In this section Haly includes complexion, and lists the temperaments of each part of the body; the heart, for example, is naturally hot; the brain is cold and moist. The treatment of the humours, the 'sons of the elements', is convention: blood is the basis of the four, the others separate out from it. The simple members follow; here Haly explains that veins need only one covering, but arteries (*pulsantes vene*), need two, because they carry subtler blood which is partly spirit. In the course of book III Haly arrives at the brain, first of the compound members because it is the noblest, being the principle of the rational soul:

> Now I say that the brain is more noble and more honourable than the other members of the body, for it is the seat, as it were the furnace of the rational soul, through which come about mind, and discretion, and the origin of the senses.[11]

It is placed at the top of the body for the sake of the eyes, so that man can see further, like an observer on a hilltop. The brain is a white body, without any blood, and soft like the soft nerves, only more moist than they; it has to be like this because it must change swiftly into the likeness of the objects of perception. It is divided into a larger after part called the *prora*, which gives rise to the sensory nerves, and a smaller, harder part, the *puppis*, from which springs the spinal cord, which needs to be stronger and tougher in order to cause motion. In the *prora* are two ventricles, which breathe in air (the cerebral *flatus*), and in them the vital spirit becomes vanimal spirit. Two projections in them, like nipples, are the end points of the sensory nerves, which lead to the organs of the five senses. In the *puppis* there is another ventricle, to which the animal spirit is conveyed through a special passage. A deep space at the top of this passage, just below the two front ventricles, is often called the *ventriciulus medius* or *congregatio ventriculorum*; it is rounded in shape in order to be more capacious of the spirit which it collects from the front ventricles to pass on to the rearmost one. The connecting passageway can be closed by means of the *vermis*, a worm-shaped body. There are two kinds of superfluity produced by

the brain: the smoky, vaporous kind rises up and seeps out through the suture joints between the skull bones; the heavier kind sinks downwards through the two passages leading to the nostrils and the palate. Air is drawn up into the brain through the passage from the nostrils, which is provided with a filter to prevent the cold air from reaching the brain before it has been delayed and warmed a little.

Beneath the brain and above the palate extends the *rete mirabile*. It is made from the pair arteries which come to the brain from the heart; they divide and interweave to form a structure like one net laid on top of another, impossible to disentangle. This structure serves to prepare the animal spirit, which, being more subtle than anything else in the body, must be slowly and carefully made. The vital spirit in the arteries is delayed and 'cooked' in this netlike web until it becomes animal spirit, or almost animal spirit; and it is then carried up by the pair arteries emerging from the top of the net to the anterior ventricles, where the process of decoction is completed.

After describing the organs of the senses which belongs to the brain complex, Haly moves down the organs of the vital spirit. His description of the heart's workings is much like that of Razes, but more elaborate. He tells how the blood from the liver enters the right ventricle, and the ngoes to the lungs (via the *vena arterialis*) in order to nourish them. The *arteria venalis* takes air from the lungs directly into the left ventricle of the heart.[12] In the left ventricle vital spirit is prepared from the air from blood cmoing in through the *septum* from the right ventricle. This vital spirit carried by the blood is the ndriven out of the heart through the great artery and its branches, to vivify the whole body. Whereas Razes merely mentions the *formaina* in the *septum* between the ventricles of the heart (which of course do not exist), Haly gives a detailed description of the imaginary passageway.

> Now the passage which leads from the right concavity to the left is larger on the right-hand side, and thence gradually narrows until it reaches the left side. This is because it is necessary to transmit the blood (which has come from the liver through the *vena cava*) from the right to the left side [of the heart]. The passage by which it goes to the left side is made tight, so that the sublest of the blood should be sent to this side of the heart.[13]

From the point of view of medieval physiology this passage was very useful, for the vital spirit was held to be generated in the left ventricle of the heart from the blood which passed in from the right ventricle, 'fed' with the air brought in from the lungs; the narrow passage served to filter off the purest and subtlest of

the blood in the right ventricle to make the spirit. Filtering and decoction were regarded as essential processes of refinement.

Haly reaches physiology proper in book IV, when he describes the workings of the body in terms of three different kinds of spirit effecting their different operations, working his time from lowest to highest. The powers of generation, nutrition and growth are effected by the natural spirit, whose seat is the liver and the veins. The natural spirit includes various subsidiary powers, like the *virtus attrahens*, which causes each member of the body to attract the nourishment it needs from the blood in the veins; this power is best seen in wheat planted in brackish fields: wheat has a salty nature, and attracts the salt from the ground, leaving the soil sweet. The second spirit, the vital spirit, is made in the heart out of the natural spirit in the blood, and it is then distributed through the arteries. Breathing is necessary for the sake of the vital spirit, for respiration cools the heart, and increases and tempers the newly-formed vital spirit within it. Any noxious vapours arising out of this process pass back from the heart along the *arteria venalis* to the lungs, and are breathed out. Hence man dies much quicker when his breath is withheld than his foot is withheld. Death, or the extinction of the vital spirit, can be likened to the extinction of a candle flame: as the oil in the lamp can run out, and the flame 'dies', so when too much blood is lost the vital spirit 'goes out'. Excessive joy causes the spirit to rush from the heart to the extremities; if it is too violent the spirit is dissipated, and the vital spark is blown out like a candle in the wind. Extreme fear has the opposite effect bu the same result: the flame is choked and extinguished.

The behaviour of the vital spirit is responsible for the passions. An external cause, such as a wild beast or a serpent, or even a terrible nightmar,e makes the vital spirit withdraw to the heart: this constitutes the sensation called fear or dread. Another kind of external event may cause the spirit to become heated and to rush out from the heart, producing a desire for vengeance: this is known as wrath. These passions affect man as well as animal, but in man they are subject to the discretion of the rational power in the brain:

> In man, wrath and rashness are under the rule and discretion of the rational power whose seat is the brain. For man has the power to lay aside his wrath, and he knows the time when struggle is necessary, how he may be freed from it, and effect a refuge when attacked, and he also judges such things with their own circumstances; but the irrational animal does this by nature, without any discretion of mind to overrule them.[14]

The ‘rational power whose seat is the brain’ operates by means of the third kind of spirit, animal spirit.

The animal spirit comprises three parts: the ruling power, which resides in the brain itself; the power of the sensation, which operates by using the sense organs and nerves coming to the front of the brain; and the power of motion, using the spinal cord and the nerves branching from it (IV *theor*. i). The animal spirit carrying these powers is made out of vital spirit and air, which is breathed in directly to the brain from the nostrils. The air also serves to keep the brain cool. The ruling power, *mens*, this threefold: it includes *phantasia*, *cogitatio*, and *memoria*, situated respcitvely in the two front ventricles, the middle ventricle, and the rear ventricle. The action of *phantasia* is ‘to form things and to represent them, and to pass them on to *cogitatio*’.[15] *Cogitatio* is the greatest of the three, and it is appropriate to man above all creatures. Animals have by nature certain capabilities: the horse is good at running, the bull at ploughing, and the dog at guarding, but unlike man, they have no discretion. The action of *cogitatio* is to examine the matters imagined by *phantasia*.

> it looks into things imagined by *phantasia*, actions, that is, arts, sciences and other matters, and their rule and disposition.[16]

If *cogitatio* calls for physical action, this is effected by the powers of movement. *Memoria* is the guardian which preserves the matters of *cogitatio*:

> *Memoria* is the guardian, who preserves those things which the cogitation of the intellect has ordered and formed, and impressed in its places. Therefore they remain firm and stable until the time when there is a need for them to be brought from potential to act.[17]

Cogitatio is the chief of these three powers, it rules the other two.

The actions of the power of sensation are effected by means of animal spirit which varies slightly with each sense; thus visual spirit is the subtlest, and has a rather fiery nature, whereas auditory spirit is more airy, taste is watery, touc his earthy, and olfactory spirit is both watery and earthy.[18] The visual spirit runs down the hollow nerve to the eye, where it receives the impressions of colour and shape at the crystalline lens. The other senses work similarly.

The animal spirit brings Haly to the margin of his subject. Before he moves on to the next section, ‘things not natural’, he feels bound to ask whether this animal spirit is the same thing as the soul or not. He repeats Galen’s account of the experiment of cutting into the brain of a living animal.[19] This operation

deprives the animal of sense and motion, but only temporarily; if the brain's coverings are replaced, the animal powers are restored. Now if the animal spirit, which is a body, were the whole soul, these powers could under no circumstances be restored, because all spirit would escape when the brain was opened. The experiment suggests that there is some principle behind the animal spirit which merely uses it as an instrument, and is not affected by its temporary loss. Haly concludes that the question of the soul is in any case a matter for philosophers, not doctors.

Having completed 'things natural': the human body, what it is made of, and how it works, Haly continues with 'things not natural': the externa legend which affect the body from the outside. Chief among these is the air, for this is directly concerned with the constitution fo the bodily spirit and the humours: if the air is pure and clear, the spirit will follow suit, but if it is murky and turbid, the humours and spirits will have the same qualities. The air is altered by the seasons and stars, the winds and regions and vapours. The doctor must consider all these effects, and study the situation of the patient's home, the prevailing winds, and the time of the year. For example, the north wind has a very cold and dry complexion, and so it has good effects on the brain: it clarifies the spirits and humours, and purifies the senses and makes them subtle; unfortunately, its dryness causes coughs and pains in the chest, and damages the eyes. The sound wind has the opposite effect. Similarly, the northern regions, being cold and dry, are inhabited by strong fierce people with long thing legs (the cold drive sthe bodily heat inwards), but the dwellers in the East have a happier temperament.

> For the people of these parts do not suffer from the extremes of pride, or wrath, or undue elation; they are a people of tranquility, mildness, and humility. For wrath, and the extreme of elation, are qualities of those who exceed temperance in heat.[20]

'Things not natural' also include exercise, baths, sleep, and food and drink. With regard to the latter, a man should take care to eat and drink the right things for his temperament. For example, the cold-complexioned should avoid grain, which is too cold, but honey, being hot and dry, will be good for them. Wine is good in moderation, as it increases natural heat and gladdens the soul, but persistent drunkenness is very dangerous:

> For ebriety, if it is frequent, brings many evils to tbe body, among them the destruction of the ruling power, weakening of the mind, enervation of the animal powers; and by filling the

> arteries and cerebral ventricles, it submerges and chills the natural warmth, causing apoplexy, paralysis, enfeeblement, coma, epilepsy, trembling and convulsions.[21]

Perfumes (V.xxxii) rise up directly to the brain, and thus affect it more than any other organ. The scent of roses is cool and dry, jasmine is warm and dry, and very good for dissolving phlegmatic hmours in the brain. Violets are cool and moist, and they help sleep when placed fresh on the head. Sleep is caused by moist vapours rising up to the brain - hence drowsiness after meals - and insomnia results from dryness. Sleep is necessary to rest the senses and to digest food.

At the end of this section, Haly includes an interesting chapter on the passions, because passions affect the body as external causes (V.xxxviii). A man who is easily angry for slight causes is anxious, sad, and excessively scared; he holds false opinions, dotes, and often falls into the worst diseases, and may even die. However, the man who controls his wrath is strengthened in mind (*animus*) and *cognitio*; itis unlikely that he will never feel such passions again, but they will not exceed *temperentia*, and will be easily curable. Hence doctors should know how to remedy such passions by their opposites. A stimulus causing wrath make sthe blood and natural heat rush out from the heart to heat and dry the body.[22] This may be proved by the fact that the eyes and face of an angry man are red and swollen. But wrath may be good for the timid, because they are cold, and their vital spirit has retreated to the heart. Steps must be taken to cure extreme morbid conditions before they go too far, for they tend to be self-perpetuating: the timid man is cold, and his coldness increases his feeling of timidity. A feeling of wrath or joy should be induced: joy is very beneficial to the worried, the sad, and the thoughtful. On the other hand, a little care is very salutary to one who is always joyful.

THE ROYAL BOOK: ON THINGS OUTSIDE NATURE

The last section, ‘on things outside nature', deals with diseases of all kinds. Book VI chapter x covers the different types of damage that can befall *mens* [the mind]: total failure or partial impairment, alteration or localised damage. Total failure is almost always the result of a bad cold complexion dominating the brain, causing senselessness and sleep, and if there are damp humours too, apoplexy or epilepsy. Partial damage can be caused by any bad complexion: cold causes immoderate sleep; hot, foolishness; wet, coma; and dry, insomnia.

Even more pernicious complaints result from the combination of bad qualities with an excess of humour. A combination of bad qualities can alter the nature of mind: too much cold and dry can cause timidity and dread, as well as melancholy hypochondria. On the subject of localised damage Haly is much clearer than Razes, though their common source in Galen is obviously the same. The man with the failed *phantasia* who 'thought he heard flute players in his room quite reasonably ordered them to leave, and he·knew the people who visited him, because his *cogitatio* and *memoria* were working properly. A damaged *phantasia* can make things seem otherwise than they are. The man threw all the household vessels downstairs was suffering from the failure cogitatio: he thought it did not matter, and did not realise that they would break, "but he could identify everything and remember what he had thrown because his other two powers were in order." Impaired *cogitatio* is seen in the absent-minded. Failure of memory can be total, as in those Ethiopians cured of the plague, who forgot their own names and repudiated their friends; or it can be partial, this is ordinary bad memory. These pathological conditions result from the same causes as the defects of the whole brain above. The proof of this is that the same bad effects can be brought about by opium and mandragora, which are both excessively cold.

The particular diseases of the brain listed in book IX include melancholia, with many of its varieties. Some patients smile too much, some weep, some deny their existence. Others think they are animals, and some believe themselves to be prophets, and maintain that they can foretell the future. Melancholia is caused by vapours disturbing the brain processes, but without fever. An incurable variety called canina causes the patient to look yellow-eyed and to sit howling on graves all night. Here too Haly includes the disease of love, brought about by a mental fixation of *cogitatio* on the loved object.

Remedies for these diseased conditions are to be found in the second part of Regalis dispositio. Book I of practice can offer no medicament for passions apart from the advice to avoid care and envy at all costs, and to make a habit of Joy and gladness. In book III Haly recommends camphor, rose-water, and cool drinks for fevers caused by wrath, and wine, music, and bathing for those caused by sorrow. Those suffering from love must be moistened and diverted by oil of violets and pleasant company.

Haly's account of the working of the human body has been described in detail, because it is the clearest account of the system which was accepted throughout the entire Middle Ages. Razes must have assumed some such model, and Avicenna employs the same system; in its broad outlines it represents fundamental medical assumptions which went necessarily

unquestioned until the dissection of human corpses led to a new system being developed. Even then, the changes came very slowly.

Although Haly is far more interested in medical theory than Razes, and in consequence includes matters which are less subject to empirical enquiry, his attitude to philosophy and morality shows him to be an exclusively medical thinker. His account of the relationship between mind and body does not at any point mention the soul or mind apart from the body; mind is mentioned only in so far as it is subject to physical disorder and treatment. Indeed, in the opening chapter cited above.[23] Haly speaks as if the soul were completely dependent on the body and the bodily spirits, and it is in only one place that he suggests that this material organ, subject to the influences of food, climate, and the patient's physical situation, is not itself the human reason. This is when he asks himself, following Galen, whether the spirit is the soul, or only the instrument of the soul:

> Now some of the wise hold that this spirit which is in the brain is the soul, and that the soul is a body. Others maintain that it is an instrument [or organ] of the soul, which it makes use of in all the senses; this seems nearer to our belief.[24]

Then follows the account of the experiment with the brain of a living animal; but this is not really conclusive in Christian or Moslem thought, for according to both man differs from animal in precisely this point: man has a soul which is of a different order from that of an animal. Haly, speaking as a physician, says that this is no concern of the medical man. His position seems to be that, whether the soul is the spirit, or merely uses the spirit, damage to the spirit causes the mens to fail, and this is where the doctor's art is supplied. Although Haly must have known from Galen that man does not differ from animals in the possession of cerebral ventricles and animal spirit, yet, since the human mind can work only by means of the animal spirit, it is possible to talk as if mind and spirit are identical. From a medical point of view, if the instrument of the mind were broken, the function would be just as impaired as if the instrument were the mind itself. Hence throughout his work, Haly refers to the *mens* as if it is damaged by ill-health and restored by the skill of the physician; only in the introductory chapter does he explain that *animus* cannot operate without a healthy bodily organ, and it is this body’s health that is subject to physic.

In the same way, moral questions outside medical practice are not mentioned. The physician is not concerned with the moral excellence or turpitude of the passion of wrath, or a state of moderate drunkenness; he must busy himself only with understanding of the physical effects of wrath and

drunkenness, so that he knows when to prescribe them, and when to forbid them. Medicine is independent of the concerns of philosophy and morals; the physician's care is to provide a healthy body, which will lead to a healthy mind, but Haly has no concern with the mind as such.

[. . .]

THOMAS AQUINAS (1224-74)

Thomas Aquinas worked at the University of Paris during the period when the works of Aristotle and the Arabian philosophers were for the first time becoming widely known and accepted in the West. Thomas built much of this controversial new knowledge into the structure of Christian doctrine, and attempted to harmonise Aristotle's views with those of the church fathers, making use of the work of the Arabian commentators, but not following them in all points.[25] The crucial point of difference between Aquinas and Avicenna is the role of man's body. Whereas to Avicenna the body was the soul's garment, and the soul was the man himself, to Aquinas man is a being made up of body and soul: *homo non est anima tantum, sed est aliquid compositum ex anima et corpore*.[26] Aquinas's insistence on man's composite nature, rather then on his intellect in isolation, leads to a momentous change in emphasis: a re-assertion of the debt intellect owes to sensation. The whole world of sensory experience - the external world, and the impressions (*phantasmata*) it leaves upon the soul of man - is regarded not only as necessary for man's development, but essential to his very nature; man was divinely created in just this way, and he achieves blessedness through it. Aquinas's view of man is set within a vast historical context between creation and beatitude: it is fundamental to his thought that a living man was made to be as he is in the first place, a hybrid creature with soul and body; his body is not a prison or a punishment, but a proper constituent part of his nature. The separation between man's two parts can never be complete or permanent. He rejects Plato's definition of man as *anima utens corpore* by asserting that sensation is a physical process: the pupil of the eye is altered by colour.[27] Only if sensation belonged to the soul alone could it be claimed that man is 'really' soul. Since sensation belongs to soul and body conjoined, and sensation is a human operation, man consists of both soul and body. It is no accident that the process of sensation plays so large a part in this argument, for, as we have seen, it is man's dependence on the physical organs of sense in spite of his presumed possession of a higher power which has constituted the problem of the extremes of soul and body. Man needs a variety

of powers, because he is a hybrid: *quia est in confinio spirtualium et corporalium creaturarum, et ideo concurrunt in ipsa [anima humana] virtutes utrarumque creaturarum*.[28] In sensation, the organs belong to the body and the power to the soul; the whole process introduces the external world in all its detail to the incorporeal intellect, which deals in abstractions.

THE INNER SENSES

Aquinas has no particular quarrel with Avicenna over the nature of the inward wits, but only over the kind of service they render to reason. Defending Avicenna's choice of five wits, he reproduces a very simplified form the same arguments: stating that in the life of one of the higher animals there are various needs, and hence it must have powers corresponding to those needs.[29] An animal must be able to perceive its foord by sight, smell or taste, and if it has voluntary motion, it must also be able to preserve some impression of it even when it is not present, so that it may be motivated by a desire to look for it. Hence it needs both *sensus communis* and *imagination*. Also, the sheep must know that the wolf is dangerous, and the bird must recognize the fitness of straws for nest-building; therefore they need a power which will perceive such properties; and this is *vis aestimativa*. *Vis memorativa* preserves the *intentiones* of *aestimativa*: we see that animals remember things if they are especially painful or pleasant. The fifth power, which Aquinas refers to as *fantasia*, is Avicenna's *imaginativa* or *cogitativa*:

> Avicenna, however, assigns between the estimative and the imaginative, a fifth power, which combines and divides imaginary forms: as when from the imaginary form of gold, and the imaginary form of a mountain, we compose the one form of a golden mountain, which we have never seen.[30]

However, Aquinas prefers to follow Averroes in regarding this power as part of imagination, because it cannot be proved to exist in animals apart from man. Later on he cites this power's ability to form unnatural images in order to counter the argument that sensation is a purely passive process.[31]

Aquinas differs from Avicenna over *vis aestimativa* in man. The difference is more than a change in terminology; it demonstrates Aquinas's tendency to bring soul and body closer together. In his general discussion of the inward wits in the *Summa theologiae*, *aestimativa* is the only power whose organ is mentioned by

Aquinas: *cui medici assignant determinatum organum, scilicet mediam partem capitis*.[32] It will be remembered that in Avicenna, *extimativa* is the one chiefly affected by the addition of reason, and hence in man is called *cogitativa* or *ratio particularis*. Aquinas mentions this power particularly in connexion with the passions and free will, which receive very little attention from Avicenna. Aquinas insists that free will is as important a characteristic of man as is his intellect. When the sheep of the example sees the wolf, it has no choice but to run away; its irascible faculty depends entirely on *estimatio*. Man is bound by no such necessity: he has a choice of actions.

> For the sheep, seeing the wolf, judges it is a thing to be shunned, from a natural, and not a free judgment, because it judges, not from reason, but from natural instinct. And the same thing is to be said of any judgment of brute animals. But man acts from judgment, because by his apprehensive power he judges that something should be avoided or sought. But because this judgment, in the case of some particular act, is not from a natural instinct, but from some act of comparison in the reason, therefore he acts from free judgement and retains the power of being inclined to various things.[33]

In man, the appetitive power (*appetiitus sensitivus*) is controlled by *ratio particularis* instead of *aestimativa*; and this particular reason is able to deduce from the general conclusions of 'universal reason' or intellect the particular mode of behaviour to fit different circumstances of life:

> In man the sensitive appetite is naturally moved by the particular reason. But this same particular reason is naturally guided and moved according to the universal reason: wherefore in syllogistic matters particular conclusions are darwin from universal propositions.[34]

In this way, the appetitive powers come under the control of will, which is governed by intellect. Experience proves to us that general conclusions (such as 'cowardice is shameful') can rule the passions when applied to particular cases:

> Anyone can experience this in himself: for by applying certain universal considerations, anger or fear or the like may be modified or excited.[35]

Animals, when confronted with a dangerous situation, proceed instantly to judgment, and then to action; but man first stops and weighs up the circumstances, deduces a course of action from fixed general principles, and then, with the assent of his will, proceeds to action. At least, he could do this in theory. In practice a conflict may arise, because the appetitive powers may be moved to action by sense and animation, and not only by particular reason. The identification of *ratio particularis* with *aestimatio* reduces the number of the powers of the soul, for there seems to be no need for Avicenna's practical intellect (*intellectus efficiens*). Aquinas seems to be saying that intellect may act without an organ in thought, but it may also through an organ in *ratio particularis* to govern the behaviour of a man in the varied circumstances of life.[36] The centre of the brain is pinpointed as the place where intellect is brought to bear on actions.

INTELLECT

It is over the question of intellect that Avicenna's tendency to remove knowledge and understanding away from the external world and sensation is most clearly marked. Aquinas, following Aristotle, attacked this. He maintained that the soul is the form of the body, and the source of all the powers possessed by a human being. Most of these powers manifest themselves in bodily actions, such as growth, sensation, and movement; but the power of the intellect has, for traditional reasons, no bodily organ. The intellect is a power proceeding from the human soul, which is the form of the body; therefore this human form differs from the forms of animals and all other material things by being partly separated, while yet existing in matter.[37] Now the intellect deals with *intelligibilia*: universals and abstractions. Avicenna had held that the intellect came to know *intelligibilia* through the data of the senses, illuminated by an external 'intelligible light', the *intellectus agens*, on the principle that nothing can proceed from potential to act without the intervention of something already in act. Hence the human soul is passive in a double sense: passive in its reception of *sensibilia*, and passive to the illumination which renders such *sensibilia* intelligible. Aquinas lays much more emphasis on the independent activity and responsibility of man. In effect, he divides Avicenna's *intellectus agens* into two. The 'intellect which is always in act' of Aristotle, which brings all others into act, according to Avicenna, he identifies with God, described by the Gospel verse: 'that was the true light, which lighteth every man that cometh into the world'.[38] Thomas holds that all other references in Aristotle to an active intellect refer to a power of the

human soul which can itself abstract universals and draw conclusions, without the intervention of any other power, apart from the constant and universal irradiation of the divine intelligence. He argues that even as among the wits there is a power that can make new forms, so in intellect there is a power to abstract and reason without recourse to outside help.

Aquinas correctly attributes the role of Avicenna's *intellectus agens* to the Platonist's suspicion of matter. The forms of things within the *intellectus agens* have no contact with matter. The forms of things within the *intellectus agens* have no contact with matter; they are true, eternal, and unchanging. Aquinas says that Plato had supposed them to exist as such, but since Aristotle had argued against this, Avicenna placed them within the separated intellects of the spheres, whence, emanating downwards to the lowest of these, the intellgibile forms are perceived by our souls, and, as sensible forms, are joined to matter to make up the sensible world:

> And so Avicenna agrees with Plato in this, that the intelligible species of our intellect are derived from certain separate forms; but these Plato held to subsist of themselves, while Avicenna placed them in the *active intelligence*.[39]

Aquinas objects to this because it does not explain why the human soul should have a body at all. It would be against the order of things for the soul to be made for the sake of matter, for the higher to serve the lower, especially since, unlike other forms, the human soul was not made dependent on the body. Rather is the body made to serve the soul, to help it fulfil its highest function, that of understanding:

> Especially does the body seem necessary to the intellectual soul, for the latter's proper operation, which is to understand; since as to tis being the soul does not depend on the body. But if the soul by its very nature had an inborn aptitude for receiving intelligible species through the influence of only certain separate principles, and were not to receive them from the senses, it would not need to the body in order to understand: wherefore to no purpose would it be united to the body.[40]

It is of no use for Avicenna to say that the body and its senses are preliminaries to understanding, that their function is only to rouse the soul to contemplate intelligible forms, received from the *intellectus agens*, for then the body would be only the cause of the soul's drugged state of oblivion, and it

would have to be explained why the soul was provided with a body in the first place. Nor is it even reasonable to argue that the soul can reach a state where it is able to contemplate forms in the *intellectus agens*, for then it would have to be allowed that a blind man could see colours, for the forms of colours would exist among the forms above, and he could see them without using his eyes.

Aquinas has argued that the first part of Avicenna's contribution is substantially true: he accepts his division and definition of the inward wits with only minor modifications. It is with intellect that he comes into conflict with him. He does not allow that there is an external source of illumination for the human intellect, which can convey to it a knowledge of separated forms, although he does grant that God himself is a cause of all human understanding. If knowledge of forms does not come into the soul from above, it must come through sense perception. This is the root and foundation of all Thomas's arguing. If man is made of soul and body, the body must be there to serve the soul, and to enable it to achieve blessedness. Man does not need outside help, except in the sense that all creation depends on God as *causa omnium*. Man was made fully equipped; his body is the means by which he comes to intelligible knowledge: *principium nostrae cognitionis est a sensu*.[41]

Thomas had explained that the human intellect itself constructs universals from the sensible forms obtained by sense perception; it needs no external *intellectus agens*. He goes further than this, however, in insisting that intellect remains dependent on sense impression, even while thinking. Aquinas bses this assertion on a statement of Aristotle which had been ignored by Avicenna: *non contingit intelligere sine phantasmate*.[42] *Phantasmata*, or sense impressions, are essential to human thought, it is not possible to think without them. The human intellect can come to a knowledge of universals by itself, through the *phantasmata* that it receives from sensation. It abstracts a universal from many particulars, but it does not then take leave of the sensible forms from which it has derived this knowledge, for in thinking of a universal, man always employs some phantasm, just as the geometer uses a diagram. Aquinas asserts that in contemplating the universal 'man' or 'horse' the intellect always has before it some mental image or phantasm of a single man or horse as it has been perceived through the senses. The phantasm necessarily has some of the limitations of a real individual horse, but the intellect considers it as an example of its species, and ignores as far as possible its individual features. This theory places the intellect in much closer collaboration with the body. Indeed, Aquinas says that when a man's cerebral organs are damaged so that he cannot form proper *phantasmata*, he cannot use his intellect. Imaginations are inseparable from thought; the mind cannot think without them.

Another and most important consequence of the close connexion between *intelligibilia* and *phantasmata* in Aquinas is the changed status of memory. Avicenna had held that the intellect 'saw' the intelligibles in transitory glimpses, when the light of the *intellectus agens* shone upon the *sensibilia* in the soul, revealing their universal forms. The *intellgibilia* thus seen did not remain as such in the soul, the soul simply acquired an aptitude for seeing them; it could repeat the experience of intellectual vision, but not retain the intelligible form.[43] Aquinas maintained that since the mind arrived at a knowledge of universals by its own efforts, by contemplating the data of its own sensory experience, the intelligible, once grasped, did not entirely vanish from the soul when the mind ceased the think on it. Intelligibles are somehow remembered, even though memory is a sensitive organ, possessed by animals which have no power to understand universals. Since memory is an organ, a cerebral ventricle, what is described in it must be something sensible, which has all the limitations of individuality and particular nature; yet, since according to Aquinas such phantasms always of necessity accompany thought, the relationship of a remembered intelligible to a remembered phantasm is not surprising. What happens is this: a person learns to distinguish and recognise different men through his sensory perception; his sight tells him that Plato differs in appearance from Socrates, and he will have two different sense impressions of these men printed in his organ of sensory memory, representing the differences in height and colouring and so on. When he understands that *humanitas* can be predicated of both Socrates and Plato, and of all individual men, he will understand the universal 'man'. Nevertheless, he will not be able to think of the universal 'man' without at the same time contemplating in imagination the image of a particular man, e.g. Plato, as an example of *humanitas*. Hence there are two ways of regarding the phantasm of Plato: it may be seen as representing Plato, or as an example of *humanitas*, and as such it may be preserved in the organ of memory. It is in this way that intelligibles are preserved in the mind, in the form of symbols or similitudes stored in the sensory memory.[44] The intelligible may be related to the similitude in various ways, just as a geometer uses differently shaped diagrams as examples to illustrate the same theorem. A similitude can never fully illustrate the universal, because as a similitude it has always some of the limitations of matter; certain aspects of it are used, and others ignored. Socrates does not represent *humanitas* in so far as he is pot-bellied and bald, but in so far as he is rational and able to laugh. A man can learn a system of association ideas and intelligibles with sensible images as similitudes: this is the art of memory.[45] The sensible image is actually situated in the organ of memory in the brain, and the mind uses it to prompt a recollection of an intelligible idea:

> Aristotle said that it was manifest to what part of the soul memory belonged, because it is the same as that to which *phantasia* belongs, and that those things are *memorabilia* of which there is *phantasia*, namely, *sensibilia*. *Memorabilia* are *per accidens intelligiblia*, which are not apprehended by man without *phantasia*. And hence we are the less able to memorize those things which have subtle and non-material significance, but those things which are gross and sensible are *memorabilia*. If we wish to remember more easily some intelligible reasons, we must link them to some other *phantasmata*, as Cicero teaches in his *Rhetoric*.[46]

Aquinas is quite clear about the part of the soul to which memory belongs, for as it necessarily deals with phantasms, it must appertain to the sensitive part. However, not being a doctor, he is uninterested in the precise physical organ which operates it. Avicenna had argued that there were two storehouses, *imaginatio* for sensible forms, and *memoralis* for *intentions*. Aquinas takes this division of Avicenna to support his view that an image can be a representation of an object, or be a symbol of something else, carrying an *intentio* of the 'something else' it symbolises.[47] He does not assume that memory retains simply *intentions*, without *phantasmata*. Aquinas holds that the *intentio* is present in the phantasm either by nature (for the sheep, the phantasm of the wolf always carries the *intentio* of *inimicitas*), or has been put there by intellect. This happens when a person deliberately chooses a phantasm by which he is going to remember an idea, as prescribed by the art of memory. The *phantasmata* carrying these real or artificial *intentions* are stored in *memorativa* in the back of the head; the phantasms cannot be in a different organ from the ideas they signify.

All this makes an enormous difference to the way in which the western philosopher views the external world. Avicenna's hostility towards matter, with its suggestion of the eastern heresy of Manichaeism, is opposed bya systematic justification of man's body as a partner of the soul in the acquisition and retention of knowledge. For Aquinas the body is not simply a cumbrous and dispensable servant of the soul, for it is the body which provides, by means of its sense organs, the *phantasmata* which are the basis of knowledge. By means of *phantasmata* the soul comes to know universals and is enabled to think of them; by means of the *phantasmata* stored in the memory, man can retain such *intelligibilia* in symbols. Man has thus no source of knowledge other than the material world. He must learn to know the creation above him by means of the

nature below him, and he can express his knowledge of incorporeal things only in similitudes and likenesses drawn from material things. Aquinas's theory allows the possibility of expressing the highest knowledge man can grasp in the guise of material things; it admits a whole world of symbolism as a process of knowledge which is both natural and necessary to human beings.

CONCLUSION

In their enquiry into the nature of the soul, the philosophers tended to move in one of two directions. The Stoics argued for a material principle of life, sensation, and intellect; in many respects the doctors were their heirs. Even though he did not commit himself to a precise location of the soul, Galen handed on a scheme which located the powers of imagination, thought, and memory in the three main cerebral ventricles. The influence of this theory continues to be felt until the Renaissance, although it frequently clashes with the 'philosophical' scheme of five powers (excluding intellect) within the same three ventricles. Costa ben Luca, who was regarded as a philosopher, reveals the same Stoic materialist outlook in his account of the mechanism of the *vermis* body, the little door which literally shuts off thought from memory. The same man quotes with approval the saying that the state of the soul depends directly on the dispositions of the body and animal spirit.[48]

Other philosophers moved in the opposite direction. Having pre-supposed an immaterial intellect, they tended to remove it as far as possible from the mutability of the individual body. Aristotle's intellect in act becomes an external separated intellect which acts in the individual human intellect according to the capabilities of the recipient. The process culminated in Averroism, where one intellect is shared by all men, and the individual man has no personal immortality; his intellect is, as it were, loaned to him, and has nothing to do with his personality, which is mortal like the beasts. Avicenna does not go as far as this: he insists on the immortality of individualised souls, but he also escapes Costa's dependence of soul on material dispositions by upholding the priority of form to matter.

Avicenna separated intellect from sensation by confining inner sensation to five powers precisely located in their proper organs in the brain, and he explained how intellect makes use of them. Where there had been three powers in three ventricles, there are, after Avicenna, five; in medieval Latin manuscripts they are represented diagrammatically as five little circles one behind the other, connected by passageways.[49] A non-medical writer like Reginald Pecock could

even speak as if the wits were really situated in this way, 'placed by row along in the head, and each in his proper cell'.[50]

Aquinas accepts Avicenna's division and disposition of the wits, but insists that the intellect is far more dependent on them than Avicenna allows. He argues that Avicenna cannot account for the soul's existence in the body by his system, and he goes on to explain that intellect cannot operate without *phantasmata* provided by the senses. By this, Aquinas runs into the opposite difficulty: he must then explain how the soul can have cognition without the body after death, and account for the nature of the knowledge 'face to face' in heaven,[51] but this does not concern us here. The great importance of Aquinas's viewpoint lies in his conviction that in this life at least, human knowledge depends on sensibilia. From our impressions of the external world, either directly apprehended, or combined and modified in our imaginations, we come to all our knowledge. This is a theory which not only permits, but necessitates symbolism; and it was to have extensive consequences in later disputes over the status and value of works of the imagination. Thus the importance of the inward wits derives precisely from their ‘in-between’ nature,: their intermediate position between sensible and intelligible, material and incorporeal, which is characteristically human.

For general bibliography see especially H. Schuling, *Bibliographie der psychologischen Literatur des 16 Jts. (Studien und Materialen zur Geschichte der Philosophie*, IV), Hildesheim 1967.

Notes

1. *Faerie queene,* II.ix.50; see also *Works of Edmund Spenser*, ed. Edwin Greenlaw and others, ii, 1953, pp. 458-66, for Spenser’s immediate sources and bibliography.

2. *Faerie queene,* II.ix.51.

3. *Faerie queene,* II.ix.56.

4. It was translated by Alfanus (ca. 1050?) and by Burgundio of Pisa (d. 1193). Both medieval translations have been printed: *Nemesis Episcopi Premon Physicon sive περι ψυσεως ανθροπου liber a N. Alfans Archiepiscopo Salerni in latinum translatus*, ed. C. Burkhard, 1917 (Teubner); and *Gregorii Nysseni (Nemesi Emeseni)* περι φυσεως ανθρωπου *liber a Burgundiene translatus*, ed. C. Burkhard, 1902. Giorgio Valla produced a new versio which was printed at Lyons in 1538; for other early editions see *Nemesius of Emesa*, trans. and ed. William Telfer (*Library of Christian Classics*, iv), 1955, pp. 203-23.

5. *Premnon Physicon, I. 90:* 'Quis igitur digne miretur nobiltatem huius animals colligantis in se ipso mortalia immortalibus, et rationabilia coniungentis irrationabilibus, ferentis in sua natura omnis creaturae imaginem?'. Trans. by George Wither, London 1636.

6. *Premnon Physicon,* prologus, 16.

7. The idea is fundamental to Aristotle's thought; see for example *HIstoria Animalium*, VIII.i (588b 4f); A. O. Lovejoy, *The Great Chain of Being*, 1936.

[39-56]

8. For Haly Abbas see Browne, pp. 53-7; Elgood, pp. 155f.

9. *History of the Philosophers*, cited by Browne, p. 53.

10. *Regalis dispositio* I theor. iii: De artis excellentia. At vero de eius nullus dubitat excellentia sapientium et cui vel modicus est intellectus super omnium excellentia artium ut utilitatis magnitudine omniumque ad eam hominum necessitate. Cum sit homo enim ceteris celsior animantibus et excelsior propriaque ei a deo data est ratione scilicet animo per quem est discretio rerumque cognitio quo etiam rerum comprehendit varietatem et ad eum conversio fit in omnibus hominum necessariis in regimine eorum et actionibus et vite necessariis aliisque operibus hecque adipiscantur hoc in mundo utlitates et gloriam in ultimis. Animus autem non erit nisi per anime sanitatem rationalis: nec vero huius sanitas nisi per anime vitalis sanitatem et naturalis: harumque duarum non temperantiam. Humourumque temperantia non erit nisi complexionis temperantia que non erit omnino nisi per artis regimen medicine per quod est sanitatis causa et incolumitatis sine quibus hominum omnino res perfici nequeunt.

11. *Reg. disp.* III theor. xi: Dico quoniam cerebrum ceteris honorabilius est membris corporis et excellentius. Est enim radix et quasi formax anime rationalis per quam est animus et discretio origoque sensibus.

12. The belief that air was drawn into the heart in respiration was held by Aristotle, see *Historia animalium* 493b 14; it remained standard medical theory until the sixteenth century. Leonardo da Vinci experimented with bellows, and found he could not force air through the lungs into the heart: see Singer, *A Short History of Medicine*, p. 89.

13. *Reg. disp.* III their. xxi: Meatus porro qui a dextro est concavo ad sinistrum: a dextro latere largior est. dehinc paulatim angustatur donec ad latus perveniat sinistrum. hoc ideo quoniam necessarium erat transmitti sanguinem qui ab epate per concavam venit venam a dextro ad sinsitrum latus. Factus est ergo meatus eius qua parte sinistro iungitur lateri strictus ut quod subtilius in sanguine est ad hoc cordis mitteretur latus.

14. *Reg. disp.* IV theor. viii: In homine etenim ira et audatia cum regimine est et discretione rationalis virtutis cuius sedes est cerebrum. Homo etenim potentiam habet deponendi iram: scitque horas quibus certamen est necessarium: quomodo eo liberetur: et refugium quum sub ingressu fuerit operaturque ea que diiudicat suis queque temporibus : irrationale autem animal per naturam hoc operatur sine aliqua animi discrtione que aliquid illis supervenerit.

15. *Reg. disp.* IV theor. ix: res formari et imaginari, et ad cogitationem transmittere.

16. *Reg. disp.* IV theor. ix: res speculatur: quarum fuit per phantasiam imaginatio actiones scilicet artes, scientias, aliasque et eorum regimen ac dispositionem.

17. *Reg. disp.* IV theor. ix: custodia est que res conservat quas cogitatio intellectus ordinavit et formavit: ac suis impressit locis. Durant ergo et stabiles usque tempus quo necessaria est earum eductio a potentia in actum.

18. This differs from Aristotle, who associated the sense of sight with the element of water, and the sense of smell with fire; ssee *De sensu et sensato*, 438b 17.

19. From *De Hippocratis et Platonis placitis*, VII; ed. Kuhn, v. p. 604f.

20. *Reg. disp. V* theor. ix: non est harum popula partium acumen superbie: non ira: nec elatio. sunt enim tranquilitatis populus et mansuetudinis humilitatisque. Ira etenim et elationis acumen his qui a temperantia extra sunt in calore fit.

21. *Reg disp.* V theor. xxx: Ebrietas namque el frequentetur plurimas affert corpori lesiones, quarum est mentis corruptio: animi attenuatio: virtutum animalium enervatio: repletionem scilicet venarum et cerebri ventriculorum: naturalem submergit calorem: eumque refrigerat: qua ex re apoplesia fit: paralisis. enervatio. obstupefactio. epilepsia. tremor et spasmus.

22. There was an Arabic story about Raze's utilization of this passion: it was said that he cured the rheumatic joints of the amir Mansur by provoking him to wrath after a hot bath. The bad humours, already loosened by the hot water, were quite driven away by the sudden anger of the nobleman. Razes fled, sending a message to the amir explaining the treatment after he had reached a safe place, and the amir forgave him, and rewarded him. See Browne, pp. 82f.

23. See above, p. 14.

24. *Reg. disp.* IV their. xix: Tradiderunt autem nonnulli sapitentum spiritum hunc qui in cerebro est animam esse: animam autem corpus esse. alii autem instrumentum anime esse quo in omnibus utitur sensibus: animamque corpus non esse: hoc autem visum persuasioni propinqu[i]us est.

25. Galen, *De usu partium corporis humani* VIII. xiii (Paris 1528, pp. 252-3).

[168-194]

26. See *The Life of Saint Thomas Aquinas*: *Biographical Documents*, ed Kenelm Foster, 1959; and for the influence of the new learning on the West, Ernest Renan, *Averroes et l'Averroisme*, and edition 1861, pp. 225f.

27. *Summa theologiae*, I.75.4. For a general discussion of the novelty of Aquinas's views on the relationship between soul and body see Bruno Nardi, 'Anime e corpo nel pensiero di San Tommasso' (1942), reprinted in *Studi di Filosofia Medievale* (*Storia et Letteratura*, 78), 1960, pp. 163-91.

28. *Summa theologiae,* I.75.3 & 4.

29. *Summa theologiae,* I.75.2.

30. *Summa theologiae,* I.78.4.

31. *Summa theologiae,* I.78.4: Avicenna vero ponit quintam potentiam, media inter aestimativam et imaginativam quae componit et dividit formas imaginatas; ut patet cum ex forma imaginata auri et forma imaginata montis componimus unam formam montis auri. qie, nunquam vidimus. (Trans. by Fathers of the English Dominican Province, 1912).

32. *Summa theologiae,* I.84.6 ad 2.

33. *Summa theologiae,* I.78.4. The note in Caramello's edition (p. 582) refers to two quotations from other works of St. Thomas, giving the positions of imagination and memory: Virtutis autem imaginativae organum est in anteriori parte cerebri (II *Sent*. dist. 20, q.2, a. 2c); memoriae, in postrema parte capitis (I *Sent*. dist.3, q.4, a.1, ad 2).

34. *Summa theologiae,* I.83.1: Iudicat enim ovis videns lupum, eum esse fugiendum, naturali iudicio, et simile est quolibet iudicio brutorum animalium. Sed homo agit iudicio: quia per vim cognoscitivam iudicat aliquid esse fugiendum vel prosequendum. Sed quia iudicium istud non est ex naturali instinctu in particulari operabili, sed ex collatione quadam rationis: ideo agit libero iudicio, potens in diversa ferri.

35. *Summa theologiae,* I.81.3: Ipsa autem ratio particularis nata est moveri et ditigi secundum rationem universalem: unde in syllogisticis ex universalibus propositionibus concluduntur conclusiones singulares.

36. *Ibid*.: Hoc etiam quilibet experiri potest in seipso: aplicando enim aliquas unversales considerationes, mitigatur ira aut timor aut aliquid huiusmodi, vel etiam instigatur.

37. Aquinas says that reason and intellect are the same. I.79.8: ratio et intellectus in homine non possunt esse diversae potentiae; and also that higher and lower reason are aspects of the same power, I.79.9: una et eadem potentia rationis est ratio superior et inferior. Sed sitinguuntur . . . per officia actuum, et secundum diversos habitus.

38. *Summa theologiae,* I.76.1. Aquinas bases his argument on Aristotle, *Physics*, II.ii; in his own commentary on this he says: 'The last things considered by natural science are forms which are, indeed, in some way separated, but which have existence in matter. And rational souls are forms of this sort. For such souls are, indeed, separated in so far as the intellective power is not the act of a coproreal organ, as the power of seeing is the act of an eye. But they are in matter in so far as they give natural existence to such a body'. See *Commentary on Aristotle's 'Physics' by St. Thomas Aquinas*, ed. R. J. Blackwell and others, 1963, p. 85.

39. *Summa theologiae,* I.84.4: Et sic in hoc Avicenna cum Platone concordat, quod species intelligibiles nostri intellectus effluunt a quibusdam formis separatis: quas tamen Plato dicit per se subsistere, Avicenna vero ponit eas in intelligentia agente.

40. *Ibid*.: Maxime autem videtur corpous esse necessarium animae intellectivae ad eius propriam operationem, quae est intelligere: quia secundum esse suum a corpore non dependet. Si autem anima species intelligibiles secundum suam naturam apta nata esset recipere per influentiam aliquorum separatorum principiorum tantum, et non acciperet eas ex sensibus, non indigeret corpore ad intelligendum: unde frustra corpori uniretur.

The whole question is discussed in more detail in Aquinas, *Quaestiones de anima*, q. 15, ed. James Robb, 1968, pp. 212f.

41. *Summa theologiae,* I.84.6.

42. *Summa theologiae,* I.84.7.

43. *Summa theologiae,* I.79.6.

44. This is discussed in detail in Aquinas's commentary on Aristotle's *De memoria et reminiscentia*, lectio III, ed. Spiazzi, pp. 95f.

45. See Frances A. Yates, *The Art of Memory*, 1966, esp. pp. 50-104.

46. Aquinas, *Comm. in lib. de memoria et reminiscentia*, 326: Et dicit manifestum esse . . . ad quam partem animae pertineat memoria, quia ad eam, ad quam pertinet phantasia; et quod illa sunt per se memorabilia, quorum est phantasia, scilicet sensibilia; per accidens autem memorabilia sunt intelligibilia, quae sine phantasia non apprehenduntur ab homine. Et inde est quod ea quae habent subtilem et spirtualem considerationem minus possumus memorari. Magis autem sunt memorabilia quae sunt grossa et sensibilia. Et oportet, si aliquas intelligibles rationes volumus memorai facilius, quod eas alligemus quasi quibusdam aliis phantasmatibus, ut docet Tullius in sua *Rhetorica*.

47. *Ibid*. 321: Posset aut alicui videri quod ex his quae hic dicuntur, quod phantasia et memoria non sunt potentiae distinctae a sensu communi, sed sint quaedam passiones ipsius. Sed Avicenna rationabiliter ostendit esse diversas potentias . . . ad aliud principium pertinet recipere formam, et conservare receptam per sensum et intentionem aliquam per sensum non apprehensam, quamvis aestimativa percipit etiam in aliis animalibus, vis autem memorativa retinet, cuius est memorati rem non absolute, sed prout est in praeterito apprehensa a sensu vel intellectu.

48. Costa ben Luca, *De animae et spiritus discrimine*, p. 316: Omnis spiritus qui fuerit . . . subtilior et clarior, erit ad recipiendum actus animae fortior . . . et propter hoc dixerunt philosophi, quod virtutes animae sequuntur complexiones corporis.

49. Sudhoff, 'Die Lehre von den Hirnventrikeln', illustrations 4 & 5.

50. Reginald Pecock, *The Folewer to the Donet*, ed. Elaie Vaughan Hitchcock, p. 30.

51. The problem is discussed in *Summa theologiae*, I.89.1; Quaestiones de anima, q. 25, ed. James Robb, pp. 213f.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 139-164

THE COMMON SENSE, PERFECTION OF THE ORDER OF PURE SENSIBILITY

Bernard J. Muller Thym
St. Louis University

Originally published in *The Thomist: A Speculative Quarterly Review of Theology and Philosophy* 2, no. 3 (1940): 315-343.

Written in 1940 by Marshall McLuhan's close friend and Thomist mentor Bernard J. Muller Thym, this article differentiates the common sense from the other internal senses in Thomist psychology by arguing that, unlike imagination, cogitation, and memory, the common sense participates neither in the ratio (discursive reasoning) nor in the intellectus (intellective seeing) of human apprehension. Contrary to what Aquinas' teacher Albertus Magnus taught, the object of the common sense, Muller Thym asserts, is not the so-called "common sensibles" (such as movement, shape, and number), but rather the unified apprehension or "perfection" of the objects of the external senses. Just as the intellect is the terminus of the phantasms of the imagination, the common sense is the terminus of the proper sensibles of the external senses.

I

In order that we may make clear the peculiar glory of the common sense and of its operation in that hierarchy which obtains among the various orders of cognitions by which things are known without their matter but with the conditions of matter, it may be well to begin with a three-fold negation.

A. The names intellectus and ratio are frequently applied to various of the internal senses to indicate something of the special character of their operation by reason of their participation in the life of reason.

1. There is the imagination or fancy, that power whose object is the things of sense divorced from reference to the here and now. In this already it is assimilated to both *ratio* and *intellectus*, which all have their operation in the absence of things of sense.[1] In this elevation to a greater degree of immateriality over the things of sense are gathered all the characteristics of the operations of the imagination: a) that it can recall the images of things once seen or heard, b)

that it can fashion images of things never seen or heard in that way by the sense, c) that the phantasm, rather than the sense, is not a transient but an enduring principle of human knowledge [2] even as the agent intellect, *virtus* of the intellective part, is a co-principle of every intellectual operation,[3] d) that the singular material substance is presented in such wise that the judgments of mathematics terminate in the imagination, whereas the judgments of physics terminate in the sense.[4]

Nevertheless, the imagination is always denominated *intellectus* and not *ratio*.

There is not the discursiveness of ratio, as that name is proper to the third operation of the reason, because the imagination . does not work through a manifold of sensible things in order to come to that which is its knowledge in act.

Now the second operation of the intellect, that of composing and dividing, is *intellectus* insofar as at heart it is always the simple affirmation of the exercise of an act of being, but it is *ratio* insofar as it always does this by composing and dividing.[5] But the imagination does not judge upon things (I do not mean "judge" in the sense of discern or discriminate), nor does it perform any act of composing or dividing in such wise as to produce a cognition which is complex; as Philoponus remarks, "*neque enim aliud alij complicat; sed solos typos sensibilium recipit*." [6] Thus the imagination cannot be assimilated as *intellectus* even to the second operation of the intellect. [7]

It remains that the fancy can be named only *intellectus*, and is thus likened to the *intelligentia indivisibilium* alone. St. Thomas even uses the word " simple apprehension " in a large sense to describe its operation--*ad simplicem apprehensionem rei*, *qualem proponit phantasia*-and both he and Aristotle had been forced to make clear in what the *intelligentia indivisibilium* in the imagination differ from the *intelligentia indivisibilium* in the intellect; for since the imagination still presents things under the conditions of matter, where each individual is one in such manner that there can be a second like to it, the imagination is an act of simple gaze at an object indivisible only in potency and not indivisible in act.[8]

2. Rarely, if ever, in the texts has sense memory been given the names *ratio* or *intellectus*. But we must not forget that it is a kind of reason, for the most accurate description of its activity is that which Aristotle has left us: its act is a kind of syllogizing, and in man this introduces into the act a certain deliberative character. [9]

3. Thus both imagination and memory avoid participating in either the *intellectus* or *ratio* which belongs to the order of the second operation of the intellect; for imagination is assimilated only to that *intellectus* which is the act of simple gaze at actually indivisible essences, and memory participates in that *ratio* alone which is syllogizing. The cogitative sense, however, participates in the ratio both of the second and of the third order of operation of the human intellect.. In the first place, it performs a judicative act upon the useful and the harmful by way of presenting these to appetite; in the second place, it carries on that discursive activity which terminates in *εμπειρια*, *experimentum*.[10]

Of the internal senses, then, the common sense alone does not participate in reason or in *intellectus*; and we should suspect that it belongs to a different order of cognition from that of imagination, sense memory, or the cogitative sense.

B. Since faculty as such is passive potency-it is, in fact, that by which the living creature participates in passive potency, since only God is His active potency and only prime matter is its passive potency-in no power can there be activity until first it will have been made to be in act. In the intellect, for example, it is not until the possible intellect will have been made to be in act by the species that it can engage on the immanent action of its own which is the enunciation of the verbum.

Now sense is a certain passion: its activity consists not so much in its moving as in its being moved; it is necessary, then, that the sense be in act before any sense faculty will have been placed in an order of active potency in which the sense can be active with respect to other sensible things of that same order. But one power can and does exercise an act with regard to another. Yet while it is true that the act of the common sense follows upon the external senses in act, nevertheless that which is described as the action correlative to the active potency which the animal possesses by reason of the sense in act is not any activity of the common sense, but is cpavTau,a. That is Aristotle's famous definition of *φαντασια: κινησις υπο της αισθησεως της κατ ενεργειαν γιγνομενη*.[11]

The act of sense memory is subsequent upon the things of sense, many of them presented one after another by acts of simple recall, and that act of the cogitative sense called *εμπειρια* is subsequent upon the act of memory, as ultimately induction is subsequent upon many acts which are *experimenta*. That is the famous procession described in the Posterior Analytics (II, 19): *αισυησις -> μνημη -> νους -> επιστημη.* But memory is not called *motus factus a phantaaia quae secundum actum*; *experimentum* is not called *motus factus a memoria*

quae secundum actum; induction is not called *motus factus ab experimento quod secundum actum*. In the midst of an excellent treatise on internal sensation John of St. Thomas remarks that *phantasia* in the Aristotelian definition covers the internal powers outside of the common sense.[12] Perhaps this is true of fancy in a most general manner. But it is not at all true for our present concern, for memory as a further act is described as subsequent upon the fancy, so defined. [13] Rather it must be said that fancy is a movement caused by the sense in act, because in its movement it is like to the movement of the sense, and only the fancy has this character: *similia est motui sensus, et nihil aliud nisi phantasia invenitur esse tale*; [14] for fancy differs from the three acts of the external sense as effect from cause,[15] and a cause which brings about movement insofar as it is being moved itself, causes a movement like to the movement by which it is moved.[16] But the movement which is memory, as a kind of syllogizing, is not similar to fancy, which is a kind of simple apprehension; even more diverse is experiment from memory; and induction, which in its term surpasses the order of sense altogether, is most removed in its movement from experiment.

The question that remains, of course, is this: if the act of the *sensus communis* be posterior to the act of the external senses, in what may it differ from *phantasia*, which is a movement similar in kind to the movement in the external sense and is a movement which is an effect of the sense in act as cause?

C. The object of the common sense is not the common sensibles, *cornmunia sensibilia*: movement, quiet, number, figure, magnitude, unity, time, the rough, the smooth, the acute, the obtuse, and the like.

More than one manual of psychology, as they call it, describes the object of the common sense as the *communia sensibilia*, apparently because it is a matter of record that there is a common sense, that there are common sensibles, and that every power is distinguished by its acts and its object. (We may point out that the correlate of that position is the equally false proposition that the common sense can perceive the common sensibles in isolation.) [17]

The fact is that there is no text in Aristotle which can be interpreted thus and that St. Thomas has explicitly rejected that doctrine:

> Some therefore say that these common sensibles are not sensibles *per accidens* for two reasons: first, because these common sensibles are proper to the common sense just as the proper sensibles are proper to the single senses; secondly,

> because there cannot be proper sensibles without there being common sensibles, there can however be proper sensibles without sensibles *per accidens*.
>
> Both reasons, however, are insufficient: the first, because it is false that these common sensibles are the proper objects of the common sense. For the common sense is a certain potency wherein are terminated changes of all the senses, as will be shown below. It is impossible, therefore, for the common sense to have any proper object that is not the object of a proper sense. But as for the changes of the proper senses by their objects, which the proper senses cannot have, just as it [the common sense] perceives the very changes of the senses, so it distinguishes between the sensibles of the different senses. For by the common sense we perceive that we live and we distinguish between the sensibles of the different senses, for instance, between white and sweet.[18]

Apparently that doctrine had been taught earlier, for Avicenna attacks it as well.[19]

While the doctrine of the *sensibilia communia* as object of the common sense is found in the pseudo-thomistic opusculum *De Potentiis Animae*.[20] Father Fabro is exactly right in concluding that the "certain ones" to whom St. Thomas refers is St. Albert the Great, on the strength of the Summa de Creaturis;[21] it surely is not Averroes.[22]

According to St. Albert there are three acts of the common sense. The apprehension of the *sensatum commune* is its act *per se*, and it is defined by that act. The apprehension of the proper sensible befits it *per posterius*; hut the apprehension of the acts of the external senses befits it *per accidens*. [23] In support of this position was the earlier text, " ... *probatur per hoc quod dicit Philosophm, quod sensata communia per se sunt sensua communia*." [24] As Father Fabro remarks "Truly, the phrase alluded to [25] has not been reported with entire fidelity."

The fact is that the common sensibles are not the object of any sense, and that in the text of Aristotle to which St. Albert refers the *ου κατα συμβεβηκος* makes clear that when we have sensation of the common sensibles, they do not fall within the class of the *sensibilia per accidens* but of the *sensibilia per se*. [26]

There is no doubt that the position of St. Thomas rather than that of St. Albert is the true one. But because the authority of St. Albert is great, it must he shown how he was forced to teach that the object of the common sense is the common sensibles, in the face of the text of Aristotle and of the multitude of

Greek and Arabian commentators to whom both he and St. Thomas owed so much.[27]

In the course of another enquiry we found it necessary to explain at some length St. Albert's teaching on the *totum potestativum*, on the nature of the soul and its faculties.[28] We must recall that doctrine briefly.

"1. The soul in itself is substance and is subsistence, altogether apart from and distinct from body. So considered the soul exists with the existence only of its highest part, in whose supreme unity and power all the lower parts are contained without distinction.

"2. It is the same soul which under another consideration acts as form and produces *esse* for that of which it is the form by a diffusion of itself in the informed thing; to speak more exactly, the diffusion is *esse*. From the one, solitary, supreme subsistence which is the soul and its highest part emanate lower forms in tum, which also give to each of the parts they inform its *esse*. This is all described in such way that there is only one substantial form and one *esse*, the function of that form in the sense of an activity which form exercises as form; and yet in regard of the *quod est*, in which that unique *esse* is diffused, the very same *esse* is multiple, since it has been multiplied according to the number of existents to which it is the *esse*.

"3. The relation of superior to inferior in this system of formalities is that of the *quo est* or *esse* to the *quod est*, of that which is formal to that which is material; their union is the unity of act and potency, of that form which in the thing corresponds to the intention which is the specific difference to that matter which in the thing corresponds to that intention which is the genus." [29]

The order of descent of "forms" in man follows this pattern: rationality, rational animal, rational sensible vegetable. But within each order is to be discovered a similar descent, with the lower related to the higher as matter to form or as *quod est* to *quo est*. In the intellective order, for example, the possible intellect flows out of the *quod est* of the soul and the agent intellect (the *unum formalisaimum*, that which *absolute et simpliciter est substantia hominis* [30]) flows out of quo est.[31] We should expect St. Albert to have continued that descent in a description of sensibility; and when we find many texts in which he speaks of the common sense as the one most formal part of the sense order,[32] we are on sure ground. In the same way, among the external senses vision is the most formal, for by reason of its excellence, its knowing many proper and common sensibles, it is more apt " ad notitiam quae est per inventionem." [33] But

the sense of touch, as Aristotle and St. Thomas also taught, is closer to the common sense; whence the sense of touch is founded on the power of the common sense, which is the source whence it flows *formaliter*-in the manner of descent of form.[34] And when the common sense, the *principium* and *fons* of the sense order, is described related to the external senses as the *commune* to the *particulare*, [35] as form to matter at least in the judgment it passes on the action of the external sense,[36] there can be little doubt that we are looking at a further elaboration of the same pattern of descent in forms.

At this point, however, St. Albert was faced with a problem which he was the first to recognize.

The common sense must keep a certain formality, community, and universality; that community, however, could not be the community of a genus, for the community of that which is most formal is as that of a *differentia*, convertible with the thing defined; this had been his constant teaching on the soul and on the *forma totiua*. Let us consider this alternative: if the common sense enjoyed the community of that which is as the ultimate difference, then it would have to be a whole, a *totum potestativum*; in no animal, above all not in man, is this true. Faced with the necessity of having something in which to root the community and formality of the common sense, St. Albert turned to the community of object; and so he made the common sensibles the object of the common sense. That is the force of the capital text:

> Therefore it may be asked, why is it called common? It is not called common as a genus nor as an integral whole or *totum potestativum*. If it were common as a genus it would be predicated of each of the proper senses, which is false; if as a whole, then its essence would be nothing outside the essence of the proper senses, just as the essence of the whole is nothing outside of the parts constituting it. Therefore it remains that its community must be on the part of the object.[37]

This position based on a descent in formalities of the object had its own consequences. The first was the enumeration of the three acts of the common sense already mentioned,[38] these acts arranged according to the priority of one over another. We have already considered texts to the effect that if the common sensibles of themselves were the object of any facuity they could be perceived only accidently by another; St. Albert could not allow exactly this conclusion, both because he wished to be faithful to Aristotle (for whom the common sensibles are *sensibilia per se*) and because it was necessary that the common sensibles be *sensibilia per se* in order that the common sensibles be diffused

through the external senses by a descent of forms. Hence he introduced the interpretation that if the common sensibles of themselves were the object of any external sense, they could be perceived by another external sense only accidentally. [39] Even as the soul, one in essence and existence, by a descent or a diffusion (*esse*) is a manifold of powers, so the first sensible, object of the common sense, is many in its descent and in its *esse diversum*,[40] for "*unus actus per se est inius potentiae, sedp lures per posterius*."[41]

It is necessary to understand that St. Albert has taken his position not as the result of an exegesis on the text of Aristotle, not of an independent analysis of the character of sensibility, not of any personal observation; rather is it a position, and the only one, he thought he could adopt in order to avoid a difficulty generated by his own theory of being. We may return to our main line of argument.

It remains that when Aristotle says that there are three kinds of sensibles, two *per se* and one *per accidens*,[42] we must understand simply that the two kinds of *sensibilia per se* are the *sensibilia propria* and the *sensibilia communia*. Thus from the outset magnitude, number and the rest are perceived *per se* by the external sense, although only in terms of that which is its proper object.

Should one ask where in the life of sense the common sensibles are presented for the first time in isolation, we must say in the imagination, not that the object of the imagination is the common sensibles, but because within the new level of '' intelligibility " established in function of the object of the *intellectus passivus* magnitude, number and the rest can be presented as in *materia intelligibilis signata* in isolation from *materia sensibilis signata* upon which they do not depend.[43]

For the whole order of sense, always confined to things in their individuality, is more concerned with the accidents of things, as against the intellect which looks rather to essence and to substance. But in material things there is a certain order of accidents, such that the first accident of matter is quantity (to which in one way or another belong all the common sensibles-St. Thomas seems to give priority to magnitude;'' Avicenna does give it to number); [45] upon quantity follow and in it are received all the other accidents of matter. And the irreducible priority is that which substance enjoys in its absolute consideration; this is attained to only by intellect.[46]

Now because that which is properly intellect is the intellect, and the imagination is named intellect only in its ordering to this, so is matter named *materia intelligibilis* ultimately from the absolute consideration of material substance made by the intellect. Hence the text we have been analyzing

continues: "*Et de his abstractis est mathematica quae considerat quantitates, et ea quae quantitates consequuntur, ut figuram, et hujusmodi*."

But the order of singulars that mathematics considers falls beneath the imagination, exceeding that which falls beneath the sense and not attaining to that which the intellect alone can consider.[47] And so the intelligible matter in which the judgments of mathematics terminate must be matter as it can be known by that intellect which is the intellectua passivus.[48]

The imagination, then, and not the common sense, ushers in an order of cognoscibility between the pure sensibility of the external sense and the formal intelligibility of the intellect.

These negations we have made about the common sense:

A. that it is neither *intellectus* nor *ratio* by participation,

B. that its act is not caused by the sense in act in such wise that a new level of intelligibility is attained in its object, wherefore

C. its object is not the common sensibles –

all come to the one truth, that the common sense in its operation dwells at the level of pure sensibility with which the external senses each has been already actually concerned. It remains, then, that we describe its function within the economy of that which is sensible and is nothing more.

II

If we had never been presented with the problem of how the infra-intelligible world of sense could be made to be actually intelligible, it might well happen that we should never come to know the agent intellect; yet from that beginning we grow to the realization that the agent intellect is a co-principle of the entire intellectual order, and more and more we are struck with wonder at the contemplation of what it is to be always in act by essence. A comparison would not be altogether valid for the common sense, both because there is nothing at all in the order of sense like an agent sense,[48a] and because we do have awareness of the act of the common sense. Nevertheless there is this measure of truth, that from a rather simple beginning of knowledge about the common sense, we may come to a remarkable realization of what it is to enjoy the perfection of the order of pure sensibility.

Part of the basic argument of Aristotle and St. Thomas is well enough known. Each sense can discern differences contained under its own proper object; but sight is not capable of judging of the sweet, which it perceives *per accidens*, nor taste of the white, which it perceives *per accidens*; but in terms of that which are had diversely as the white and the sweet, and as following upon the act of the

external sense, it is necessary that there be a sense which apprehends in the manner of one that which in the external senses is many; this is the common sense. Thus its object is that perceived as one which the external senses perceive as many, and its relation to the external sense is that of term to principle.

So evident a case is this of the principle that the higher the level of being at which a thing exists the more does it possess its power in a unified manner, that St. Thomas employs the common sense as an example in at least three other instances: 1) to show that separate intellective substances, angels, know singular things through forms which demonstrate both the universal and the particular as we humans know these;[49] 2) to show that God is the purest truth;[50] 3) to show that although even the highest of natural human knowledges suffers division at least into the speculative and the practical, revealed theology does not, for it is "*velut quaedam impressio divinae scientiae, quae est una et simplex omnium*."[51]

Aristotle had spoken of the common sense as like to a point, either one or two,[52] for a point is one as the terminus of a line but is two as that shared in common by two lines which coincide. As the text of Aristotle suggests, St. Thomas in one place interprets this apparently as a point which is the term of two lines distinguished by section,[53] and in this follows Simplicius.[54] On this M. DeCorte remarks, "We believe with the greater number of the ancient commentators, that it is necessary to see in this point the center of the circle and not, with Simplicius and St. Thomas, the point that segments a line."[55] Upon this comment we would pass two remarks, 1) that the force of the example would be utterly the same, though not so telling perhaps, had St. Thomas confined himself to this one exegesis, and 2) that St. Thomas later in the De Anima does speak of the common sense as the center in which all lines terminate.[56] And to the list of commentators we may add another example from Philoponus,[57] one from Avicenna,[58] one from Averroes; [59] St. Albert also followed Avicenna in interpreting the example as the center of a circle; [60] in one place he also makes it the center point which divides the diameter of a circle.[61]

Point as term of a line, however, is only a weak example of term as term is related to principle among knowledges. Hence St. Thomas adds to the example of the center point of a circle the observation that the common sense is one in respect of all sensibles as the intellect is the term of all phantasms.[62] And this is profoundly true. Still the intellect exceeds altogether the order of the phantasm, and although it is true that the common sense exceeds the external senses in its operation, still its object is the sensible in relation to the external senses whose object is some proper sensible. We may understand the common sense as term

better if we can find another proportion of principle to term among things at the same level of cognoscibility.

The one clear instance, one we cannot avoid, is that of the two-fold operation of intellect:

> *Respondeo dicendum, quod in qualibet cognitione duo est considerare, scilicet principium, et finem sive terminum. Principium quidem ad apprehensionem pertinet, terminus autem ad judicium; ibi enim cognitio perficitur.* [63]

Now the intellect, whose object is being, encompasses that object variously in its acts; for the object of the first act is being in its limit, essence, whereas the object of the second operation is being in that which is the exercise of the act of being, esse.[64] In the order of generation the first act must precede the second, as the imperfect is always prior to the perfect; but it is impossible that the thing, which exists at the very same level of intelligibility in both acts, enter that imperfect cognition which is simple apprehension without somehow attaining to the perfect stature of intelligibility gained in the second operation. Thus it is that although a universal concept is formed from particulars by induction, the term of induction is the *intellectus principiorum.* [65]

We are now able to establish the ratio:

$$\frac{\text{movement of external sense}}{\text{movement of common sense}} = \frac{\text{intelligentia indivisibilium}}{\text{operatio componentis et dividentis}} = \frac{\text{principium}}{\text{terminus}}.$$

And because

$$\frac{\text{movement of the external sense}}{\text{the external sense}} = \frac{\text{the movement of the common sense}}{\text{the common sense}}$$

we have

$$\frac{\text{external sense}}{\text{common sense}} = \frac{\text{intelligentia indivisibilium}}{\text{operatio componentis et dividentis}} = \frac{\text{principium}}{\text{terminus}}.$$

For this reason St. Thomas is always insistent that the community of the common sense is not the community of a genus,[66] is not the community of indetermination and of that which is on the side of matter; but in this sense of the word "common " which bears on the perfect, as against the imperfect, state of cognoscibility, in what we believe is a unique text St. Thomas calls the term of

intellectual knowledge the common operation of intellect: ". . . *quantum ad operationem communem intellectus, quae est compomtio et divisio*."[67]

Perhaps we must make clear that in no sense do we say the common sense participates in intellect, or its object in anything of intelligibility; we have been studying it with the technique of analogy in order better to understand what it is to be the term of cognition.

We may go a step further by the use of the same method. There are various ways in which anything may terminate in something; for term signifies that which is ultimate in regard of anything.[68] There may be that which is term of a magnitudesurface for body, point for line.[69] Term may be the extreme of movement or action, as esse is the term of generation; [70] and here much more is the principle operative that term is nobler than that which is terminated as container than thing contained. Again, the constitutive difference is the term of the essence of the species.[71] But if we consider cognition, there is between the *cognoscibile* and the *cognoscens* the proportion of form to matter, of maker to thing made, of act to its potency.[72] Thus it is necessary that that which is a term of cognition be term in function of that which is term of the thing known, for cognition takes place by the assimilation of knower to thing known.[73]

Now the term of the common sense so understood is the sensible, that is, both the sensible in the manifold of the external senses and above all the sensible, common not with the community of a genus or of a predicate, but with the community of the form of a higher order which possesses as one what is shared by many forms of a lower order; moreover, the term of the second operation of the intellect is *ipsum esse rei*. On the strength of our original proportions, then, if we consider this ultimate signification of term, we shall derive the ratio:

$$\frac{\text{the common sense}}{\text{the sensible, common with the community of form}} = \frac{\text{second operation of intellect}}{\text{ipsum esse rei}}$$

There is a certain circularity in knowledge of all orders, which is more or less complete according to the degree of immanence in the activity of the knower; in the intellect that return of knowledge is complete insofar as the intellect knows what it knows and in the same act knows its own act and the proportion of its act to the thing known, in which proportion the ratio of truth consists; whence there is truth in the intellect. But the sense knows what it knows, as it also knows its own act, but it does not know the nature of that act to be conformed

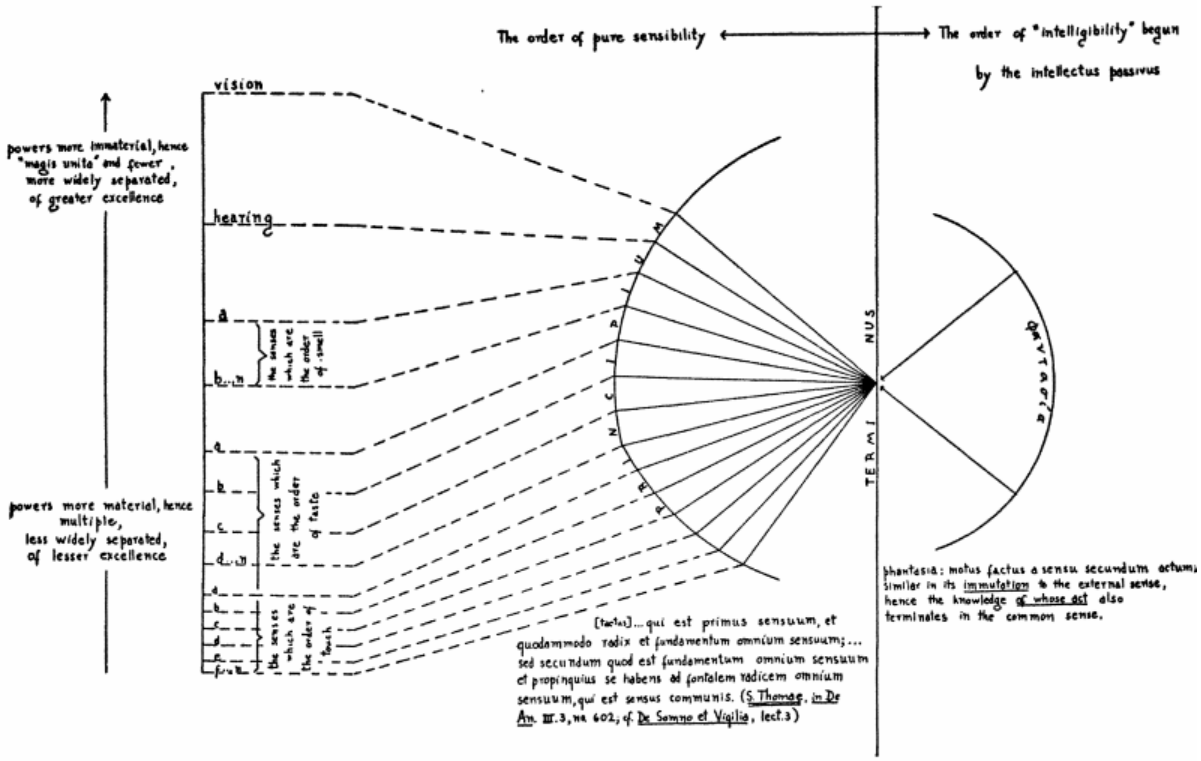
to the things it knows; whence there is only a partial or incomplete return of the sense upon itself.[74]

It would appear, however, that since such reflection characterizes knowledge in the full enjoyment of the cognoscibility of its object, we find any power making that sort of return upon itself only in the act in which it attains its object in the integral cognoscibility of that order of knowledge. Thus while truth is in the intellect rather than in the sense, truth is in the intellect only in its second operation, for there alone does the intellect have something proper to itself;[75] for the intellect is moved at once to that term of reflexive knowledge, the knowing of the truth by which it judges, only in the act in which it attains to the ultimate act of being and the ultimate principle of intelligibility, *esse*; for "*veritas fundatur magis in ease rei quam in quidditate*."[76]

The sense, we have just remarked, does make a partial return insofar as the animal knows that it sees, hears and the like. That knowledge, however, both Aristotle and St. Thomas clearly affirm is had not in the act of vision or of hearing; for it is not by sight that the animal sees that it sees, but by that power named the common sense.[77] It should be well understood that there is no process to infinity in such wise that another sense be necessary in order to know the act of the common sense, even as only the common sense can know the acts (*immutationes*) of the external senses; for we are dealing with a series of ordered causes, and that the common sense knows vision, as well as that it knows its own act, is something which accrues to it by reason of its being the term of the order of knowledge concerned with pure sensibility.

Moreover, although *phantasia* - at least as the act of imagination - ushers in a new order of "intelligibility," still insofar as fancy is *motus factus a sensu secundum actum* and in this movement is like to the movements in the external sense, the acts of the fancy are also known by the common sense.[78] And thus in sleep, although the senses be bound and impeded in their action, so that there is no act of the external sense to terminate in the common sense, if anything remains of the activity of the common sense, it is that it knows the act of fancy; for it sees that the things which are seen are dreams, as discerning between things and the likenesses of things.[79]

This is the glory of the common sense as the common root and principle of the sense life, that which is term in the realm of pure sensibility, without which there could not be any sensation or any order of things sensible.



III

Our inquiry has thus come to its conclusion; we should wish here to conclude its summary exposition as well, for men who have the philosophic temper and the *habitus* of metaphysics will realize quite well the significance of this mode of study.

Yet in our day there are many writers who find themselves in this case: they have not realized that in every enunciation the intellect expresses the exercise of an act of being; they have not realized that the thomistic metaphysics is always a metaphysics of things in function of their " to be," their *esse*, that is, in function of the exercise of that act; they have allowed themselves to be seduced into calling into doubt the existence oi things in such wise that that existence would then have to be reconstructed by way of discovering an existence surely known in one case and thence proved successively for each given case. In these straits they postulate some sort of initial, primary, irreducible knowledge of " self " and call this knowledge an existential experience. This is a pure position, let us remark, and no amount of meditation thereon can give it the character of a rational evidence, for it contains no element of problem or of mystery. Like every pure position, however, it may be used: indeed, it would seem that it is with the

use in view that the postulate has been formed. From this " experience " of " existence" are deduced variously categories of being, existence of the world of sense, and divers other things. The whole system of deductions is called, not too happily, an existential metaphysic. In a way, then, we are forced to add a further word.

It should be evident that at the same time we have been studying the common sense as term of the order of pure sensibility, an induction has been going on, which, though conducted through relatively few instances, has not been incomplex. Perhaps we should suggest the following principles which may not have remained altogether implicit at the conclusion even of that partial induction:

1. Of knowledges specified within the same order of cognoscibility, one of which is as principle and the other as term, the reflexivity appropriate to the given order of knowledge is realized in that knowledge which is term, in function of its being term.

2. Of knowledges so related as principle and term, the terminal knowledge is term in function of the object in the exercise of the ultimate act of that order of things cognoscible.

3. The reflexivity realized in that knowledge which is term exists in function of the object in the exercise of the ultimate act of that order of things cognoscible.

Notes

1 Considerandum autem est, quod sicut supra dictum est, sicut [Philosophus] sub intellectu phantasiam comprehendit, ita etiam phantasiam usque ad intellectum extendit, sequens nominis rationem. Nam phantasia apparitio quaedam est: apparet autem aliquid et secundum sensum et secundum rationem. Phantasia etiam habet suam operationem in absentia sensibilium, ut ratio et intellectus (S. Thomae, *in De An.*, III, 16, ed. Pirotta n. 837). . . . ; ita tamen quod sub intellectu phantasia comprehendatur, quae habet aliquid simile intellectui, inquantum movet ad absentiam sensibilium sicut intellectus, ... (o,p. cit., III, 15, n. 818).

2 διο ουδεποτε νοει ανευ φαντασματος η ψυχη (Aristotelis, De An., m, 8, 48la16- l 7) . Ad quintum dicendum, quod phantasma est principium nostrae cognitionis, ut ex quo incipit intellectus operatio non sicut transiens, sed sicut permanens, ut quoddam fundamentum intellectualis operationis: sicut principia demonstrationis oportet manere in omni processu scientiae, cum phantasmata comparentur ad intellectum ut objecta, in quibus inspicit omne quod inspicit vel secundum perfectam representationem, vel secundum negationem ... (S. Thomae, *in Boet. de Trin*., VI, i, ad 5, ed. Mandonnet, p. 184).

3 . . . ; et ideo anima virtutem habet per quam facit species sensibiles esse intelligibiles actu, quae est intellectus agens; et habet virtutem per quam est in potentia, ut efficiatur in actu determinatae cognitionis a specie rei sensibilis, factae intelligibilis actu: et haec virtus vel potentia dicitur intellectus possibilis: et harum duarum virtutum operationes sequitur omne nostrum intelligere, tam principiorum, quam conclusionum; ... (S. Thomae, *in II Sent*., d. 17, q. i, a. I, resp., ed. Mandonnet, p. 428).

4 *In Boet. de Trin*., VI, I resp., ed. Mandonnet, pp. 132-133.

5 Cf. S. Thomae, *De Verit*., 15, I ad 5; *ibid*., resp.; *op. cit*., 1, 12 resp.

6 Quod igitur dicit, hoc est quia ipsa quidem secundum se fantasia neque affirmat aliquid neque negat. Neque enim aliud alij complicat, sed solos typos sensibilium recipit (Ioannis Grammatici, *super III de Anima* [ed. Marcel De Corte, *Le Commentaire de Jean Philopon aur le Troisieme Livre du "Traite de l'Ame" d'Aristote*, Liege/Paris, 1984, p. 88. 86-84. 3]).

7 . . . Sed ad phantasiam non sequitur passio in appetitu; quia dum aliquid apparet nobis secundum phantasiam, similiter nos habemus, ac si consideremus in pictura aliqua terribilia vel sperabilia; ergo opinio none est idem quod phantasia.
Huius autem differentiae ratio est, quia appetitus non patitur neque movetur *ad simplicem apprehenaionem rei, qualem proponit phantasia*. Sed oportet quod apprehendatur sub ratione boni vel mali, convenientis vel nocivi. Et hoc facit opinio in hominibus, componendo et dividendo, dum opinatur hoc esse terribile vel malum. illud autem esse sperabile vel bonum. *Phantasia autem non componit neque dividit* (S. Thomae, in De An., III, 4, nos. 684-685; we have added the italics in this text) . Cf.: Deinde cum dicit "est autem" ostendit differentiam inter phantasiam et intellectum. Et primo quantum ad operationem communem intellectus, quae est compositio et divisio; dicens quod phantasia est alterum ab affirmatione vel negatione intellectus; quia in complexione intelligibilium iam est verum et falsum: quod non est in phantasia. Nam cognoscere verum et falsum est solius intellectus (op. cit., III, l3, n. 793) .

8 *τα δε πρωτα νοηματα τινι διοισει του μη φαντασματα ειναί ή ουδε ταλλα φαντασματα, αλλ ουκ ανευ φαντασματων* (*De Anima* Γ. 8, 432a12-14) . Cf. the comment of St. Thomas on this text: Inquirit in quo differant primi intellectus, idest intelligentiae indivisibilium, cum non sint phantasmata. Et respondet, quod non sunt sine phantasmatibus, sed tamen non sunt phantasmata, quia phantasmata sunt similitudines particularium, intellecta autem sunt universalia ab individuantibus conditionibus abstracta: unde phantasmata sunt indivisibilia in potentia, et non in actu (*in De An*., III, l3, n. 794) .

9 *De Memoria. et Reminiscentia* 453a4-14; *Hist. Animalium*, I, I, 488b24-26. Cf. S. Thomae, *in De Mem. et Rem*., 8, nos. 399-400; *op. cit.*, 5, n. 362; *Summa Theol*., I, q. 78, a. 4, resp.

10 Aristotelis, *Anal. Post*., B. 19, esp. 100a3-6. Cf. S. Thomae, *in Anal. Post*., II, to, ed. Leon. esp. n. II; *in Met.*, I, 1, ed. Cathala no. 15.

11 *De Anima*, Γ. 3, 429a1; cf. *Rhet*., A. 11, 1370a28. The quotation occurs many times in St. Thomas, e. g., *in Phys*., VIII, 6; *in de Sensu et Sensato*, i, n. 811; *in de An*., II, 4, n. 265; III, 6, n. 659; III, 13, n. 792, etc.

12 Dico primo: Phantasia communiter sumpta pro potentiis interioribus praeter sensum communem, definitur a Philosopho, quod est " motus factus a sensu secundum actum " (*Curs. Phil. Thom., Phil. Nat*., p. IV, q. viii, art. i, ed. Beiser, p. tat).

13 Memoria enim sequitur phantasiam, quae est motus factus a sensu secundum actum, ut habetur in secundo de Anima (S. Thomae, *in Met*., I, 1, n. IO). St. Thomas's reference is to the second and not the third book of the De Anima, because in the arabic-latin translation that accompanied the translation of the commentary of Averroes, the third book begins at book III, chapter 4, 429a10 of the Greek text. In his own commentary on the *De Anima* St. Thomas begins the third book at 424b22.

14 Ex omnibus autem his concludit, quod phantasia. sit *quidam motus causatus a sensu secundum actum*; qui quidem motus non est sine sensu, neque potest inesse his quae non sentiunt. Quia si aliquis motus fit a sensu secundum actum, similis est motui sensus, et nihil aliud nisi phantasia invenitur esse tale. Relinquitur ergo, quod phantasia sit huiusmodi motus. Et ex hoc quod est motus causatus a sensu, similis ei, . . . (S. Thomae, *in De An*., III, 6, n. 659) .

15 *Ibid*., n. 664.

16 Deinde proponit quod ab actu sensus contingit quemdam motum fieri. Quod quidem manifestum fit ex eo quod primo proponebatur, scilicet quod ab eo quod est motum, contingit moveri alterum. Sensus autem secundum actum fit, ex eo quod movetur a sensibilibus; unde relinquitur t quod a sensu secundum actum causetur aliquis motus. Ex quo etiam manifestum est, quia motus causatur ab actu sensus, necesse est quod sit similis sensui, quia omne agens agit simile sibi. Unde et illud, quod movet inquantum movetur, causat motum similem motui quo ipsum movetur (*Ibid*.~ n. 658)

17 A representative list will be found on p. 82 sqq. of the excellent study by Fr. Cornelio Fabro, "II Problema della Percezione Sensoriale," *Bollettino Filosofico* IV, I (1938) , 5-62.

Some modern commentators have come to this conclusion as the result of a mistaken reading of an admittedly difficult text in Aristotle: *ταυτα γαρ παντα κινησει αισυανομεθα, οιον μεγεθος κινησει* (De Anima, r. 1, 425a16-17). (Among them is the author of a rather good Latin manual of " psychologia metaphysica " which appeared in a new edition in 1989.) The argument runs thus: we perceive magnitude and all the common sensibles by motion; but the common sense perceives motion, for it perceives the movements of the external senses; therefore the common sense perceives the common sensibles distinctly.

The difficulty, of course, has risen over an equivocation in the word motion, *κινησσις*.

The text of the De Anima says that we perceive *all* the common sensibles by a movement; i. e. 1) we perceive all the common sensibles, of which movement is one, by a movement, and 2) we perceive all the common sensibles by a movement and not by movement (which is one of the common sensibles). There is nothing in Aristotle to show

that movement enjoys any priority over magnitude; rather all the texts on the continuum, time, and the like are to the contrary effect; for magnitude comprehends all continua, e.g., movement and time (*Phys*. IV. t, 220b24; VI. 2, 232a24) . There is precisely a question of such priority here, for the text continues *ωστε και σχημα μεγεθος γαρ τι το σχημα . . . κ. τ. λ.* i.e., we perceive figure also by a movement, for figure is somehow posterior to magnitude.

It remains that by *κινησει*, we must understand the movement, immutatio, which is sensation. Hence the text says we (i.e. the senses, the external senses as well as the common sense) perceive all the common sensibles, even as we perceive the proper sensibles, by a kind of immutation, since both the common and proper sensibles are *sensibilia per se*.

The exact reading of the text has not escaped St. Thomas: Quaecumque enim sentiuntur per hoc quod immutant sensum, sentiuntur per se et non secundum accidens. Nam hoc est per se sentire, pati aliquid a sensibili. Sed omnia haec sensibilia, per immutationem quamdam sentiuntur. Et hoc est quod dicit, quod haec omnia sentimus " motu," idest quadam immutatione. Manifestum est enim quod magnitudo immutat sensum, cum sit subjectum qualitatis sensibilis puta coloris aut saporis, et qualitates non agunt sine suis subjectis. Ex quo apparet, quod figuram etiam cognoscimus cum quadam immutatione, quia figura est aliquid magnitudinis, quia consistit in conterminatione magnitudinis. Est enim figura quae termino vel terminis continetur, ut dicitur in 1 Euclidis (*in De An*., III, I, no. 577) .

18 Dicunt igitur quidam, quod hujusmodi communia sensibilia non sunt sensibilia per accidens, propter duas rationes. *Primo* quidem, quia hujusmodi sensibilia communia sunt propria sensui communi, sicut sensibilia propria sunt propria singulis sensibus. *Secundo*, quia sensibilia propria non possunt esse sine sensibilibus communibus; possunt autem esse sine sensibilibus per accidens.

Utraque autem responsio incompetem eat. *Prima* quidem, quia falsum est, quod ista sensibilia communia sint propria objecta sensus communis. Sensus autem communis est quaedam potentia, ad quam terminantur immutationes omnium sensuum, ut infra patebit. Unde impossibile est quod sensus communis habeat aliquod pro,. prinm objectum, quod non sit objectum sensus proprii. Sed circa immutationes ipsas sensuum propriorum a suis objectis, quas sensus proprii habere non possunt: sicut quod percipit ipsas immutationes sensuum, et discernit inter sensibilia diversorum sensuum. Sensu enim communi percipimus nos vivere et discernimus inter sensibilia diversorum sensuum, scilicet album et dulce. (S. Thomae, *in De An*., III 18, nos. 289-890).

19 lam autem putaverunt aliqui hominum quod haec sensihilia communia habent sensum existentem in animalibus in quo conveniunt: et a quo apprehenduntur. sed non est ita. tu enim scis quod quaedam ex his apprehenduntur per colorem: qui si non essent: non apprehenderentur: et quaedam apprehenduntur per tactum. qui si non essent non apprehenderentur. si autem possibile esset aliquod istorum apprehendi sine mediante qualitate quae est primum apprehensum ab alio istorum sensuum. tunc esset hoc possihile. sed uti nobis sit impossibile apprehendere illud nisi mediante

apprehendente quod apprehendit sensu cognitio. aut significatione sive mediante sensu. hoc non habet sensum communem ullo modo (Avicennae*, Lib. VI Naturalium* III. 8, ed. Venet. (1508] fol. 17rb). Sensus autem qui est communis alius ab eo quem tenent illi: qui putaverunt quod sensibilia communia haberent sensum communem (*op. cit*. IV, I, fol. 17rbA).

20 Chapter 4, ed. Mandonnet, p. 858.

21 Cornelio Fabro, *op. cit*., pp. 84-85.

22 The common sensibles are proper to the common sense only in the way that they are proper to the external senses, i.e., both the common sensibles and the proper sensibles are *sensibilia per se*: Cum declaravit duos modos sensibilium per se, scilicet propriorum et communium, incepit declarare tertium modum, qui est sensibilis per accidens. . . . Et etiam sensibilia communia, ut declarabitur, sunt propria sensui communi, quemadmodum ista sunt propria unicuique sensuum: ... (Averrois Cordubensis, *super II de Anima*, text. et com. 65, ed. Venet. apud Iuntas [1550-52] fol. 189va). The other relevant texts are the commentaries on texts ISS and 184. For the benefit of those to whom the best edition is not available we cite these texts:

Et etiam impossibile est aliud sentiens esse a quinque sensibus, ita quod sensibile eius est aliquod unum sensibilium communium, sub quibus sunt sensibilia propria unicuique sensuum quinque, nisi sensibilia essent communia unicuique sensuum accidentaliter. et dicit hoc, quia, si essent eis accidentaliter, contingeret ut essent alicui sensui essentialiter. quod enim invenitur alicui accidentaliter, debet inveniri alij essentialiter.

Deinde dicit verbi gratia motui et cetera idest et sensibilia communia non sunt comprehensa a quinque sensibus accidentaliter, verbi gratia motus, et quies, et figura, et quantitas, et numerus. omnia enim ista sentiuntur a quinque sensibus per aliam motionem, et passionem. et quod est ita necesse est ut sit essentialiter. Deinde dicit, verbi gratia quantitas etc., idest verbi gratia quantitas. sensus enim innati sunt comprehendere eam per aliquam passionem vel motus, et similiter est de figura. figura enim est quantitas cum aliqua qualitate. Deinde dicit. quies autem non per motum, etcetera idest comprehensio autem quietis est per comprehensionem privationis motus. cum enim comprehenderunt motum essentialiter, comprehendunt privationem eius essentialiter scilicet quietem. Comprehensio vero nunieri et multitudinis a sensibus est per comprehensionem privationis continui; quod est magnitudo et iam declaratum est quod continuum comprehenditur essentialiter; ergo et sua privatio comprehenditur essentialiter (*op. cit*. text. et com. 133, fol. 153ra; it should be remarked how much in agreement the text of St. Thomas *in De An.*, III, 1, part of which is cited in note 17 above, is with the commentary of Averroes).

Et, cum declaratum est quod communia sensibilia comprehendiuntur (*sic*) a quinque sensibus essentialiter, manifestum est quod impossibile est sensum proprium esse alicuius istorum sensibilium communium, verbi gratia motus, aut quantitas. quoniam, si ita esset, tunc sentiremus motum, aut sibi similes de sensibilibus communibus, non per se, sed per medium: sicut comprehendimus per visum hoc esse dulce mediante colore (op. cit., text. et com. 184, fol. 158rb).

23 Tres sunt actus sensus communis, sed non eodem niodo ei conveniunt. Apprehensio enim sensati communis est actus suus per se, et per ilium diflinitur. Apprehensio autem sensati proprii convenit ei per posterius, scilicet in quantum sensatum proprium est in sensato communi ut in subiecto. Sed apprehensio actuum convenit ei per accidens, in quantum unumquodque propriorum reducitur in ipsum (S. Alberti Magni, *Summa de Creaturia*, II, q. 86, a. I, ed. Borgnet tom. 35, p. 320a [hereinafter cited in this fashion: B35. 320a]; cf. *op. cit.*, q. 84, a. i ad i, B35.299b).

24 *Op. cit*., q. 35, a. 1, B35. 309ab.

25 των δε κοινων ηδη εχομεν αιςθησιν κοινην ου κατα συμβεβηκος (*De Anima.*, Γ. 1, 425a27).

26 Deinde cum dicit "at vero," quia posset aliquis dicere, quod est aliquis sensus cognoscitivus sensibilium communium: excludit hoc tali ratione. Quicquid cognoscitur ab uno sensu, ut proprium sensibile ejus, non cognoscitur ab aliis sensibus, nisi per accidens: sed sensibilia communia non sentiuntur per accidens ab aliquo sensuum, sed per se a pluribus: sensibilia igitur communia non sunt propria objecta alicujus sensus (S. Thomae, *in De An*., III, 1, n. 575). It is true, however, that this text says principally that the common sensibles are not the object of any external sense.

27 That the debt of thirteenth century Christian philosophers to the Arabian commentators is particularly great in the matter of the internal senses has been demonstrated by Harry Austryn Wolfson, "The Internal Sense in Latin, Arabic and Hebrew Philosophic Texts,'' *Harvard Tkeological Review*, XXVIII, i (1986), 69-133.

28 Bernard J. Muller-Thym, *The Establishment of the Univeraity of Being in the Doctrine of Meister Eckhart of Hochheim* (New York: Sheed & Ward, 1989), chapter II: " The nature of the soul according to the German Dominican school:' pp. 28-67

29 *Op. cit*., pp. 55•56. It is really important to study the texts of St. Albert presented in this chapter, as a result of whose analysis these conclusions have been reached; for in the development of the present argument we must regard the basic doctrine as established, in order that we may avoid constant references to our monograph.

30 S. Alberti M., *De Anima*, Ill, tr. 5, c. 4.

31 S. Alberti M., *S. de Creat.*, II, q. 56, a. 1 ad 1, B35. 478b .

32 E. g., the text of Aristotle εστι δε τισ και κοινη δυναμισ αχολουσθα πασαις St. Albert interpolates thus: Est autem quaedam communis et formalis potentia quae sequitur omnes . . . (*De Somno et Vigilia*, I, tr. 2, c. 1, B9. 138a); . . . sensus enim communis qui formalis est, ... (*De An.*, II, tr. 4, c. 8, B5.306a); Sed ad hujus solutionem hoc oportet supponere quod inferius ostendemus, quod scilicet somnus sit in animali secundum *primum sensum, quod est sensus communis*, et hoc est, quod comparat sensata particularia ad propria, sicut prius diximus in
libro de Anima. Cum autem spiritus sit formarum sensibilium vehiculum, et recurvit spiritus ad interiora, virtus vecta ad interius adhuc comparat ea sicut primum: et tunc magis quando ab exterioribus abstrahitur et abducitur: et quoad hoc solum dicitur, quod somnus est recursus sensus communis ad interiora: quia virtus spiritus sequens ipsam recurrit ad primum ejus principium, quod est quasi cor. Nec est intelligendum hoc de potentia animae, quae vocatur sensus communis: haec enim est sita in organo

suo sicut visiva virtus in oculo, sed intelligitur de virtute quae influit super instrumentum, *et de forma quae formaliter sensus communis vocatur: illa enim adhuc interiora retracta sensus communis objectum est, e*t discemit eam sensus communis (*De Somno et Vigilia*, I, tr. 1, c. 9, B9. 135b-136a; we have added the italics). In this text the *primum sensum* and the form called common sensing is the common sensibles, and, as he says, this form is the object of the common sense; why St. Albert attributes the formality to the object of the common sense will become clear in the course of this exposition.

33 *De Sensu et Sensato*, tr. 1, c. 2, B9.4a. The text continues (B9.4b): ...propter quod etiam formalissimus sensuum est visus. Cf. also: *De An.*, II, tr. 4, c. 11, text. et com. 147, B5.310b.

34 virtus ipsa fundatur supra virtutem sensus communis qui est suum principium unde fluxit formaliter: ... (*De Somno et Vigilia*, I, tr. 2, c. I, B9.138b).

35 Sunt omnes sensus unum in forma virtutis sensitivae, quae fons est virtutem (*sic*) sensuum particularium: et ipsi particulares sensus sunt sicut rivi ex communi fonte derivati: et hoc sensu communi est judicium circa particulares actiones quae sunt sensuum particularium: et hoc modo reflectitur virtus sensitiva super se, quando ju di cat de seipsa: sensus enim communis qui f ormalis est, reflectitur super particularem judicando sensibiliter de actione et operatione ejus. Et hoc modo nihil prohibet quando idem sit activum et passivum: agere enim quoddam est judicare et componendo et dividendo, et hoc est communis sensus, qui est formalis: recipere autem et habere formas sensibiles est pati, et hoc est sensuum particularium (*De An*., II, tr. 4, c. 8, B5.306a). For the *commune* and *particulare*, cf. B. J. Muller-Thym, *op. cit*., p. 62.

36 . . . : sicut enim in Iibro de Anima dictum est, sensus communis se habet ut forma, et sensus proprius ut materia in judicio sensibilium: ... (*De Somno et Vigilia*, I, tr. I, c. 9, B9. 136b).

37 Quaeritur ergo, Quare dicitur communis? Non enim dicitur communis ut genus, neque ut totum integrale sive potestativum. Si enim esset communis ut genus, praedicaretur de singulis propriis, quod falsum est. Si vero ut totum tunc sua essentia nihil esset extra essentiam propriorum sensuum, sicut essentia totius nulla est extra suas partes constituentes ipsum. Ergo relinquitur, quod communitas ipsius sit ex parte objecti. (S. Alberti M., *S. de Creat*., II q. 35, a. 2, B35.312b). The text continues in the *solutio*: Concedimus has ultimas rationes ostendentes quare sensus dicatur communis. Cf. also: Propter hoc dicimus ad hoc et his similia omnia, quod sensus communis est una numero forma quae est universalis non ut praedicabile: sed sicut causa formaliter praebens ea quae oriuntur ex ipsa: ... (*De An*., II, tr. 4, c. 12, B5.312b; one should consult the rest of this long and remarkable text). We can observe certain points of doctrine in which St. Thomas continues the work of his teacher. For example, in the *De Ente et Essentia* he continues the teaching of St. Albert on the *forma totius* in this, that since no integral part is predicated of its whole, and since, e. g., " animality " is predicated of the whole "man," the genus, differentia, and species must each be a *forma totius*; but the other half of St. Albert's doctrine on the *forma totius* he rejects.

(Cf., e. g., S. Thomae, *Quodl*., II, 2, 4 resp. " Dicunt autem quidam, quod forma partis . . . sed compositum ex materia et forma" reports St. Albert exactly and destroys his position.) Here appears a similar case. When St. Thomas says that the common sense is common not with the community of a genus (e.g., *Summa Theol*,., I, q. 78, a. 4 ad I) he has taken just this much and no more from St. Albert.

38 The text of the *Summa de Creaturia* cited in note ts above. Cf. also: Ad aliud dicendum quod sensatum commune per se est sensus communis, secundum quod per se dicit immediatum, quod non vi alterius facit sensum, per posterius autem est sensuum propriorum, sicut visus, quia primo et per se accipit albedinem, et posterius accipit figuram et magnitudinem albi, quia in magnitudine album est sicut in subjecto (*Op. cit.*, q. 34, a. 2 ad 2, B35.299b).

39 S. Alberti M., *De An.*, II, tr. 4, c. 6, B5.300b.

40 Dicamus ergo secundum praedicta, quod virtutis unius quae secundum essentiam et esse est eadem, non potest esse operatio super duo: sensitivum autem primum non est tale, sed essentialiter est unum, et secundum esse diversificatur: et ideo operatio ejus existens est una secundum quod comparatur ad essentiam ipsius primi sentientis, sed efficitur plures ex parte qua est in esse diverso secundum quod comparatur ad sensus proprios, sicut centrum unum in essentia existens, plura est secundum esse terminando et principiando lineas quae egrediuntur ex ipsa: et haec solutio est Averrois et Alfarabii, et est bona (S. Alberti M., *De Sensu et Sensato*). One may well wonder whether St. Albert has taken any more from Averroes than the elaboration of the image of the center and the radii of the circle.

41 Alberti M., *S. de Creat*., II, q. 36, a. 1, sol. ad obj. 2 et 3, B35.320a. Another interesting point: many times St. Albert repeats the dictum *phantasia est motus factus a sensu secundum actum*; yet that formula was far too vague to express the relation between the knowledges of fancy, the common sense and the external sense. It is gratifying, then, to find him modifying this saying of Aristotle: Diximus autem in libro *de Anima*, quod " phantasia est passio sensus communis sicut efficientis: “ quoniam est motus et passio a sensu communi facta (*De Memoria et Reminiscentia*, tr. 1, c. 3, B9.102a). The quotation marks should be removed from the Borgnet text.

42 De Anima, Γ. 1, 425a27.

43 Following Aristotle, St. Thomas sees in this the reason for the greatest kinds of false judgment the imagination can make. S. Thomae, *in De An*., III, 6, n. 663. Cf. also S. Alberti M . ., *De Anima*, III, tr. I, c. 8, B5.327b.

44 *In De Anima*, III, 1, nos. 577, 578.

45 Numerus autem est qui magis debet vocari communis: omnes enim sensus conveniunt in illo (Avicennae, *Lib. VI Nat*., III, 8, ed. Venet. [1508] fol. 17rb).

46 Unde cum omnia accidentia comparentur ad substantiam sicut forma ad materiam, et cujuslibet accidentis ratio dependeat a substantia, impossibile est aliquam talem formam a substantia separari. Sed accidentia adveniunt substantiae quodam ordine. Nam primo advenit ei quantitas, deinde qualitas, deinde passiones et motus. Unde quantitas potest intelligi in substantia antequam intelligantur in ea qualitates sensibiles, a quibus dicitur materia sensibilis: et sic secundum rationem suae

substantiae non dependet quantitas a materia sensibili, sed intelligibili tantum. Substantia enim remotis accidentibus non remanet nisi intellectu comprehensibilis, eo quod sensibiles potentiae non pertingunt usque ad substantiae comprehensionem (S. Thomae. *in Boet. de Trin*., V, 8 resp., ed Mandonnet, p. 112).

47 *Op. cit*., VI, 2 resp., ed. Mandonnet, pp. 132-133.

48 Nec differt utrum singularia sint sensibilia vel intelligibila. Singularia quidem sensibilia sunt sicut circuli aerei et lignei. Intelligibilia singularia sunt sicut circuli mathematici. Quod autem in mathematicis considerentur aliqua singularia, ex hoc patet, quia considerantur ibi plura unius speciei, sicut plures lineae aequales, et plures figurae similes. Dicuntur autem intelligibilia hujusmodi singularia, secundum quod absque sensu comprehenduntur per solam phantasiam, quae quandoque intellectus vocatur secundum illud in tertio de Anima: '' Intellectus passivus corruptibilis est" (S. Thomae,. *in Met*., VII, 10, n. 1494).

48a In his commentary on the *De Anima* (II, tr. 8, c. 6, B5.240b sqq.) St. Albert raised the interesting question whether there be one mover of the whole order of things sensible, even as there is the agent intellect for the intelligible order. The opinion of those he calls " modemi," that light is that one mover, he brands as altogether ridiculous. But the older Augustinian difficulty had been how can anything material at all be the cause of something spiritual; and to the great authority of Plato and St. Augustine he pays deference. Cf.: Alii autem antiquiores his dixerunt, quod virtus animae est agens eas intentiones spirituales: et isti sunt qui dixerunt potissimam virtutem sensus esse activam et non passivam: ... (B5.241b). Opinio autem secunda est multo probabilior, licet modemomm pauci teneant earn: erat enim ilia Platonis et etiam Augustini et multorum aliorum magnorum virorum. Tamen sine praejudicio aut ego non intelligo eos, aut ipsi falsum dixerunt B5.243b). St. Albert, surely under the influence of Aristotle and of the great commentators, rejects the opinion because the sensible is already in act and because the sense is passive in its being moved by its object. Now in St. Thomas the common sense has practically nothing that would suggest a comparison with the agent intellect. But as St. Albert had conceived the agent intellect, the common sense almost demanded comparison with the agent intellect, for each was conceived as the *unum formalisaimum* in its own border, and each was a formal source of descent; the one of sensible, the other of intelligible forms. Hence later in the *De Anima* (ll, tr. 4, c. li, B5.313a "et hoc est quod intendit dicere Augustinus etc.") St. Albert explained in terms of the doctrine of formalities that St. Augustine"s teaching should be assimilated to St. Albert's own description of the common sense.

49 S. Thomae, *Summa Theol*., I, q. 57, a. i resp. (cf. *ST* I. 77. 3 ad 4); *Cont. Gent*., II, 100, ed. Leonina manualis p 224b.

50 *Cont. Gent.*, I, 61, p. 56b.

51 *Summa Theol*., I, q. 1, a. 3 ad 2, and the resp.

52 *De Anima*, Γ. 2, 427a10. We may remark that this is not an application of mathematics to physics such as would yield an intermediate science; rather it is a use of mathematics in an allegorical or anagogical sense, so that the example of Aristotle is in a class with, e. g., Richard of St. Victor's description of the four comers of the Ark of

the Covenant, or with Henning's gustatory tetrahedron described in the psychology books.

53 S. Thomae, *in De An*., III, 4, n. 609; Cf. also, nos. 610 sqq.

54 Cited by M. DeCorte, "' Notes exegetiques sur la theorie aristotelicienne du sensus communis,',, *The New Scholasticism*., VI, 3 (1932), p. 200, note 36.

55 *Op. cit.*, p. 200. The ancient commentators listed in note 36 are Alexander, Themistius, Philoponus, and Sophonias.

56 . . . inquantum sensus communis comparatur ad sensus proprios ut quoddam medium, sicut centrum comparatur ad lineas terminatas ad ipsum (S. Thomae, *De An*., III, 12, no. 768). Et licet sensus exteriores sint plures, tamen ultimum, ad quod terminantur immutationes horum sensuum, est unum; quia est quasi medietas una inter omnes sensus, sicut centrum ad quod terminantur omnes lineae, quasi ad unum medium (Op. cit., no. 773).

57 . . . sicut est terminus unus, terminum dicens ultimum plurium linearum que in idem conveniunt, quale est circuli centrum ad quod omnes que circumferentia recte conveniunt, quod subjecto quidem unum est signum et impartibile, eo autem quod. multorum terminus est, multa est (Ioannis Grammatici, *Super III de Anima*, ed. DeCorte 71. 27-31).

58 . . . : quae vocatur sensus communis: quae est centrum commune omnium sensuum: ... (Avicennae, *Lib. VI Nat.*, IV, I ed. Venet. (1508] fol. 17va).

59 . . . , sed ista virtus est una et multa, ut punctus, qui est centrum circuli, quando ab eo fuerint ductae multae lineae a centro ad circumferentiam. et hoc intendebat, cum dicit punctus unius, hoc est punctus, qui continetur ab una linea (Averrois Cordubensis, *super II de Anima*, text. et com. 149, ed Venet. apud Iuntas [1550-52] fol. 156rb).

60 Tertia ratio communitatis est, quod sensus proprii referuntur ad ipsum ut ad unum centrum omnium sensuum, ut dicit Avicenna (S. Alberti M., *S. de Creat.*, II, q. 35, a. 2, B35.312b). Cf.: *op. cit*., q. 36, a. 2 sol. B35.321b; *De Somno et Vigilia*., I, tr. 2, c. 1, B9. 138a; De Sensu et Sensato, tr. 3, c. 6, B9.91b.

61 S. Alberti M., *De Anima*, II, tr. 4, c. 11, B5.311ab.

62 S. Thomae, *in De An*., III, 12, n. 774.

63 S. Thomae, *in Boet. de Trin*., VI, 2 resp., ed. Mandonnet p. 182. In this article St. Thomas pushes human knowledge back to that which is its ultimate principle, the sense; and the name "apprehension," which expresses technically the simple acceptance of an object of cognition, is applicable not only to the first act of intellect, but also to the knowledge of the external sense and the imagination. There is no question, however, of simple apprehension's being principle and prior in relation to judgment, the term and posterior; e. g., Compositio autem et divisio posterior est consideratione eius *quod quid est*, quod est eius principium (*Cont. Gent.*, I, 58, ed. Leonina man., p. 54b); Intellectus autem noster, apprehendendo incomplexa, nondum pertingit ad ultimum suam perfectionem, quia adhuc est in potentia respectu compositionis et divisionis: sicut et in naturalibus simplicia sunt in potentia respectu commixtorum, et partes respectu totius (*Op. cit*., I, 59, p. 55b).

64 *In Boet. de Trin*., V, 3 resp., ed. Mandonnet, p. 110. Cf.: ... prima operatio respicit quidditatem rei; secunda respicit esse ipsius (in *I Sent.*, 19. 5. I ad 7). Cf. also: *op. cit.*, 38, 1. 3 resp., ed. Mandonnet, p. 903) .

65 Cf. Aristotelis, *Eth. Nic*., Z. 3, 1139b28 sqq., and Post. Anal., B. 19; cf. S. Thomae, *in Eth*., VI, 3. no. 1148.

66 E. g., *Summa Theol*., I. q. 78, a. 4 ad 1.

67 S. Thomae, *in De An*., III, 13, n. 793.

68 *Primo ponit rationem termini*; dicens, quod terminus dicitur quod est ultimum cujuslibet rei, ita quod nihil de primo terminato est extra ipsum terminum; et omnia quae sunt ejus, continentur intra ipsum (S. Thomae, *in Met.*, V, 19, n. 1044; cf. *Quodl*., I, 10, 22 ad 1).

69 S. Thomae, *in Met*., *loc. cit.*, n. 1045.

70 *Ibid*., n. 1046.

71 S. Thomae, *in I Sent.*, 43, 1, 1 resp.

72 Alio modo possunt intelligi convenientia, ita quod conveniant in aliquo ordine, et sic attenditur proportio inter materiam et formam, faciens et factum, et talis proportio requiritur inter cognoscentem et cognoscibile; cum cognoscibile sit quasi actus potentiae cognoscentis . . . (S. Thomae, *in Boet. de Trin*., I, 2 ad 3, ed. Mandonnet, p. 33). Ad quartum dicendum quod intellectus et intelligibile sunt unius generis sicut potentia et actus (*ibid. ad 4*). Ad secundum dicendum, quod sicut sensus in actu est sensibile in actu, ut dicitur, non ita quod ipsa vis sensitiva sit ipsa similitudo sensibilis quae est in sensu, sed quia ex utroque fit unum, sicut ex actu et potentia; ita et intellectus in actu dicitur esse intellectum in actu., non quod substantia intellectus sit ipsa similitudo per quam intelligit, sed quia Illa similitudo est forma ejus (*Summa Theol*,., I, q. 55, a. 1 ad 2) .

73 Si autem est terminus cognitionis, oportet quod sit rei terminus, quia cognitio fit per assimilationem cognoscentis ad rem cognitam (S. Thomae, *loc. cit*. n. 1048) .

74 S. Thomae, *De Verit*., I, 9 resp.

75 *Op. cit*., I, 3 resp.

76 S. Thomae, in *I Sent.*, 19, 5, I resp. and ad 7. These texts are famous. Of the many studies based on them we refer to one of the most recent and penetrating, Gerald B. Phelan, "Verum Sequitur Esse Rerum," *Mediaeval Studies*, I (1989), 11-22.

77 Aristotelis, *De Somno*, 2, 455a15-17.

Probat minorem dicens quod in unoquoque sensu particulari est aliquid proprium, et aliquid commune, consequens ad ipsum proprium, et est eis sua propria operatio, ut visui videre, et auditui audire, et quaedam communis potentia sentiendi est, consequens ad omnes sensus particulares .... Probat consequens duabus rationibus. Quarum prima talis est. aliquo sentimus nos videre: sed non sensu proprio. ergo aliquis est sensus communis sentiens (S. Thomae, *in De Somno et Vigilia*, 3, ed. Piana [Romae, 1570], sections c and d, fol. 30va). Cf. *in De An*., Il. 18, no. 390. Also . . . a quo etiam percipiuntur actiones sensuum, sicut cum aliquis videt se videre. Hoc enim non potest fieri per sensum proprium, qui non cognoscit nisi formam sensibilis a quo immutatur; in

qua immutatione perficitur visio, et ex qua immutatione sequitur alia immutatio in sensu communi, qui visionem percipit (*Summa Theol*., I, q. 78, a. 4 ad 2). Cf .... quia cujuslibet potentiae animae virtus est determinata ad objectum suum; uncle et ejus actio primo et principaliter in objectum tendit. In ea vero quibus in objectum tendit, non potest nisi per quandam reditionem, sicut videmus, quod visio primo dirigitur in colorem; sed in actum visionis suae non dirigitur nisi per quandam reditionem, dum videndo colorem videt se videre. Sed ista reditio incompleta est in sensu, . . . (*De Verit*., 10, 9 resp.).

78 St. Albert seems to have extended this knowledge to the perception of the movements of any of the interior powers, *De Somno et Vigilia*, I, 1, 2, B9.125a.

79 Si autem motus vaporis fuit modicus, non solum imaginatio remanet libera, sed etiam ipse sensus communis ex parte solvitur; ita quod homo judicat interdum in dormiendo, ea quae videt, somnia esse, quasi dijudicans inter res et rerum similituclines. Sed tamen ex aliqua parte remanet sensus communis ligatus (S. Thomae, *Summa Theol*., I, q. 84. a. 8 ad 2).

Center for the Study of Digital Life

Dianoetikon 1 (2020): 165-174

THE COGITATIVE POWER: AQUINAS' DEVELOPMENT OF HIS PREDECESSORS' VIEWS

Dr. Mark J. Barker
Notre Dame Seminary, New Orleans

Examining the Aristotelian commentaries of Avicenna, Averroes, and Aquinas, Barker details how 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.

I. THE ORIGIN OF THE COGITATIVE

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 thecommon 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*.

IV. NATURE AND PROPER OBJECT

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.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 175-186

THE INTERIOR SENSORIUM IN MEDIA ECOLOGY: JUSTIFICATION FOR STUDY

Dennis D. Cali
University of Texas at Tyler

Originally published in *New Explorations: Studies in Culture and Communication*, 1, no. 2 (2020), https://jps.library.utoronto.ca/index.php/nexj/article/view/35088.

Noting the traditional media ecological study of the impact of media environments on sensory perception and consciousness, Cali looks to Eric McLuhan's discussion of the four senses of scripture in medieval exegesis as a potential launching pad for an investigation of the "interior sensorium" informed by mystical philosophy. Cali offers four justifications for a media ecological study of the interior sensorium: he proposes that such a study may (1) enrich our knowledge of human consciousness, (2) combat deterministic theories of media through identifying areas of human sensibility potentially unaffected by external sensation, (3) increase philosophical understanding of the human person as a mind-body unit, and (4) promote a holistic theory of knowledge, beyond such historically foundational dualisms as subject-object, inner-outer, mind-reality.

****

The human sensorium is fundamental to studies in media ecology. Media ecologists have shown us how the dominant medium of an age exerts particular effects on our sensory apparatus, biasing our consciousness of space and time and reshaping how we perceive our environments. Two examples will suffice. Walter Ong, who indicated that "by sensorium we mean…the entire sensory apparatus as an operational complex"[1] demonstrated in his pivotal *Orality and Literacy* text that changes in thought and consciousness were engendered by the transition from an oral culture to a literate one.[2] Similarly, Marshall McLuhan, in describing how we look upon new media by clinging to the machinations of old media, famously wrote: "We see the world through a rear-view mirror. We march backwards into the future."[3]

Yet another sensorium – what might be called an "interior" or a "subterranean" sensorium – has occupied the attention of philosophers, theologians and some media ecologists. A list of such scholars who have written about the "spiritual senses" dates back to antiquity and runs up to today: Origen of Alexandria, Gregory of Nyssa, Augustine, Gregory the Great, Pseudo-Dionysius the Areopagite, Maximus the Confessor, Alexander of Hales, Thomas Gallus, Bonaventure, Thomas Aquinas, Karl Rahner, Henri de Lubac, and Hans Urs von Balthasar. Most recently and in our own field of inquiry, the matter of the interior sensorium was the focus of reflection in the book entitled *The Sensus Communis, Synesthesia, and the Soul: An Odyssey* and the 2017 Media

Ecology Association keynote address of our late esteemed colleague Eric McLuhan. In that address and book, the younger McLuhan posited that religious faith furnishes the human being with another way of knowing. For the most part, however, the field has ignored or even implicitly denied the existence of an interior sensorium. It speaks of "interiorization," but in its discussion of consciousness and perception relies much more heavily on sight, sound, colour, touch, and taste, which is to say sensory response to external stimuli. Since the interior sensorium potentially plays an even greater role in forming identity of people and might also inform the external sensorium, such neglect misses an opportunity to extend our understanding of human consciousness and the role that media perform in shaping it. Matters such as sub-conscience; discernment; interpretation; subjectivity and intersubjectivity; unknowing (which really means "knowing" through means other than natural sensory); mystical knowing, and "tacit knowing" are ripe for further exploration.

As a prelude to a book project on this subject, this essay explores the pertinence of this interior sensorium to media ecology and its role in shaping human identity in a technological age. I offer four justifications for directing attention to the interior senses, or "the senses of the soul." Exploring the senses of the soul, or the interior sensorium, is particularly intriguing in that it investigates "senses" that by their nature are non-corporeal.

A central locus of investigation in all of media ecology is human consciousness. Besides the examples of Ong that address the psychodynamics of orality and McLuhan that includes figure-ground, percept versus concept, and the effects of "hot and cool" media on human consciousness, the list of studies that have investigated the relationship between media and consciousness would include, among countless others, Harold Innis' 1951 *The Bias of Communication,* Edmund Carpenter's 2003 documentary "Oh, What a Blow that Phantom Gave Me" and Neil Postman's *Amusing Ourselves to Death* in 1985.

Postman explains the effects of media on consciousness taken up by media ecologists:

> The printing press, the computer, and television are not therefore simply machines which convey information. They are metaphors through which we conceptualize reality in one way or another. They will classify the world for us, sequence it, frame it, enlarge it, reduce it, argue a case for what it is like. Through these media metaphors, we do not see the world as it is. We see it as our coding systems are. Such is the power of the form of information.[4]

As recently as June of 2018, Eric McLuhan spoke to MEA attendees about that dimension of consciousness that rests beyond the *sensus communis* of the 5 senses. The notion of sensus communis, as Aristotle first advanced for us in *De Anima,* holds that human beings don't perceive objects according to the

sensory input of one organ at a time. We don't perceive a rose, for example, as a composite of shape + size + color+ fragrance but as a synthesis of perceivable qualities. Communus sensus refers to the apprehension of objects as a unification of input, a synthesis, of the five senses into a perceptual whole. Directing further study on the interior facets of consciousness would be continuing the prescient observations that Eric McLuhan set forth in his keynote address. *In short, further exploration of the interior sensorium, the sensorium of non-corporeal senses that function as counterparts to but may work in conjunction with the exterior sensorium, stands to extend our understanding of human consciousness,* offering a first justification for undertaking such a study.

Whether describing figure and ground, psychological crystallization, (i.e. the use of images, labels and slogans as the basis of thought) or the psychodynamics of orality, media ecologists have centered their explorations on a concern for the interplay of the influences on culture, technology, and *consciousness.* They have offered various postulates about the interior dimensions of consciousness. Calling the human being the "collector and custodian of consciousness," Pierre Teilhard de Chardin took the term to include "every kind of psychism, from the most rudimentary forms in interior perception imaginable the human phenomenon of reflective thought."[5] In *Philosophy of Man,* he speaks of "radial energy" to describe the "within" of things. The concern for that inner "energy", the inner dimension of consciousness, is part of the legacy of media ecology. McLuhan spoke of an extension-interiorization interplay in his *Gutenberg Galaxy*: "Every technology contrived and conceived by man has the power to numb human awareness during the period of its first interiorization."[6] And yet the nature, form, or function of the interior sensorium remains largely unexamined.

One aspect of the interior aspect of consciousness that stands to shed light on human consciousness and thereby to advance the discovery potentiality of the field is the matter of *what counts* as interior senses. Many mystics write about seeing with the eyes of faith or listening to the inner voice. Eric McLuhan includes the theological virtues of faith, hope, and love as interior senses, with one serving as the ground for the others (personal correspondence). He also includes the four levels of interpretation of Scripture—the historic or literal; the allegorical, the tropological, and the anagogical.[7] They are modes of the consciousness that move at the literal and most outward level from awareness of the material reality—the "what" of what Scripture says—to an anagogical level, the most interiorly experienced, acquired directly through supernatural experience. Viewing them in tandem, Eric McLuhan sees the Scriptural set of senses as the interior counterpart to the Aristotelian four causes that he sees as exterior:

> I had already noticed that Grammar provided two sets of senses, the fourfold intellectual senses of scripture—de Lubac—and the fourfold interpretation of the physical world—via the four

> causes. One inner; one outer. They parallel each other (as mentioned in *Laws of Media*).[8]

In other words, Eric McLuhan sees de Lubac's historical, allegorical, tropological, and anagogical senses of spiritual reality and Aristotle's material, formal, final, and efficient causes of physical reality as serving complementary epistemic functions—of "inner" and "outer" worlds, respectively.

Another basic postulate advanced by consciousness scholars regards the "placement" of the interior sensoria vis-à-vis the sensoria with which we are most familiar. Wilber spoke of "shades" or "bands" or "levels of consciousness."[9] He cited a Tibetan Buddhistic view about these "levels": they

> are not separate layers…but rather in the nature of mutually penetrating forms of energy, from the finest 'all-radiating,' all pervading, luminous consciousness down to the densest form of 'materialized consciousness,' which appears before us as our visible, physical body.[10]

In his discussion of harmonizing objects in time and space, de Chardin referred to a "chain of succession in nature" and in a footnote within his discussion of "the threshold of reflection," he spoke of "successive planes of knowledge," which is to say "successive planes of consciousness."[11] Saint Bonaventure, Teresa of Avila, Richard of St. Victor and other mystical writers speak of "rooms of a castle," "sets of eyes," and "three sets of alphabets," indicating that they understand an interior sensorium as if on a path or continuum or spiral with the exterior sensorium. The "space" or "place" of the interior senses of the soul relative to the sensorium that concerned Marshall McLuhan, Ong and others warrants further study.

Another facet of the interior sensorium that should concern media ecologists is its correlation with evolutionary change. De Chardin submitted that biological changes run parallel to changes in the soul in close collaboration. An "intercentric process," the "movement of our souls," he wrote, expresses and measures the very stages of progress of evolution itself.[12] One sees in his explanation of how interior dimensions of consciousness animate and reflect outer developments possible roots of the analyses advanced by McLuhan, Ong, and others:

> …the universe, regarded sidereally, is in process of spatial expansion (from the infinitesimal to the immense), in the same way and still more clearly it presents itself to us, physico-chemically, as in process of organic involution upon itself (from the extremely simple to the extremely complex)—and moreover, this particular involution 'of complexity' is experimentally bound up with a correlative increase in interiorisation [sic], that is to say in the psyche or consciousness.[13]

Secondly, diving more deeply into the interior sensorium can also yield antidotes to deterministic influences of media and other external stimuli. Relying primarily on the (exterior) sensorium of the five senses participates in an empirical approach to study even though its methodology is speculative and philosophical, not mathematical. "The eye of the flesh," wrote Wilber, "is empirical."[14] Thus, if a major concern of media ecology, if not its principal raison d'être, is that the introduction of some new medium into a culture shapes how that culture processes information, investigating a sensorium resistant to such influences ought likewise to interest the media ecologist. Indeed, an inward turn to consciousness, soul, spirit, mind, and virtues can unveil insights into human nature impervious to the most pressing effects of media. In other words, it could provide a check to the most pressing forms of hard determinism.

To speak of a sensorium invulnerable to external stimuli is to address the human ability to be guided by pre-Word or percept; it is to acknowledge an aspect of the human experience that is unmediated. It is also supersensory or supernatural. Lonergan expounded:

> Before it enters the world mediated by meaning, religion is the prior Word of God [that] speaks to us by flooding our hearts with his love. The prior word pertains, not to the world mediated by meaning, but to the world of immediacy, to the unmediated experience of the mystery of love and awe. The outwardly spoken word is historically conditioned: its meaning depends upon the human context in which it is uttered, and such contexts vary from place to place and from one generation to another. But the prior word in its immediacy, though it differs in intensity, though it resonates differently in different temperaments and in different stages of religious development, withdraws man from the diversity of history by moving out of the world mediated by meaning and toward a world of immediacy in which image and symbol, thought and word, lose their relevance and even disappear.[15]

Bonaventure also spoke of "a light that shines upon our mind" and speaks of consciousness in stating that "our mind itself is created by Truth in person without intermediary."[16] Perhaps that interior dimension—the mind or the soul—is most directly reached by those whose external senses don't block access. Referring to the members of the L'Arche Daybreak community of people with mental disabilities, Henri Nouwen stated that "The spirit of God seemed to speak directly to them and through them, unmediated by books or intellectual discussion."[17]

At the very least, studying the interior sensorium can help to enlighten our understanding on innate qualities whose capacities are otherwise not fully exercised. It can result in a "showing," as Richard of St. Victor, in the 12th Century, put it: "it can manifest, unveil things otherwise hidden and of vision, each an important aspect of *divina revelatio*."[18] De Chardin says of the

inner vision wrought through the interior sensorium that "to see is really to become more."[19] Incomprehension of the interior sensorium deprives persons of knowledge acquired through extra-sensory or supersensory modes. Gregory the Great described such lack of awareness as a "blindness" and an "ignorance of the light of supernal contemplation."[20] Writing on Augustine's comprehension of the interior senses, Lootens notes that absence of such awareness and reliance only on the five senses leaves humanity "in a state of sensory exile."[21]

Analysis of the interior senses exceeds the scholarship of psychology, as valuable as it is. It touches on aspects of being that innately transcend comprehension of material and even mental phenomena. Nouwen explains:

> We are bearers of God's image and spirit. That is the revelation of God within our innermost self. Psychology can give us helpful language for our varied parts of who we are, but we need theology to remind us that we can never be defined by personality or any disorder. We are defined by something deeper and wider than those aspects. That is what is meant when we speak about the soul—that identity where we are most personal and most Godlike.[22]

Even in psychological investigations, Western psychotherapies seek to *"patch up"* the individual self, whereas Eastern approaches seek to help a person to *transcend* the individual self.[23] Lonergan suggests that true intersubjectivity and meaningful communication turn on the mutual ability to transcend self.[24] Stated differently, better understanding of the senses of the soul could result in better understanding of meaningful communication.

Although media ecology already points to the interior dimension, investigating more intentionally what I have called "the interior sensorium" can also enrich the contribution of media ecology as a response to dualistic philosophy evident in rationalism and other frameworks of disembodiment*. A third warrant for exploring the interior sensorium is thus the philosophical value of doing so.* In its exploration of the human sensorium, media ecologists most typically concern themselves with exterior senses, through which the reach of our faculties or senses themselves are extended by media. They have done so perhaps due to their observation that contemporary people are becoming "discarnate beings." Said Eric McLuhan "Twentieth-century man—electronic man—has now lived minus a physical body for an entire century."[25] Thus, perhaps in an impulse to "re-carnate" persons, Marshall McLuhan and others showed us, for example, that glasses extend our sight; the wheel extends our feet; clothing extends our skin. The field especially espies the properties, affordances, and linguistic implications of technology.

In taking stock of the *inner* direction—the interiorization of media via the surface sensorium—a number of media ecologists typically adumbrate the nature, function and scope of the interior sensorium: its composition; its role in human consciousness; its collaboration with the "external" sensorium; its

reaction to media. They tend to speak obtusely about a shadowy process of interiorization but tend not to delve into the inner properties that exist when interiorization has occurred. In other words, the sensorium that has primarily interested media ecologists is that of the five senses, presumably because it rests at the nexus of the self and the physical world and thus functions as the medium through which selves are communicated. And yet the very incorporeal nature of the interior sensorium should goad media ecologists to search out alternative means that have been deployed to capture the nature, function, and scope of the spiritual senses. What metaphors and analogies have philosophers, theologians, and others used to characterize it? To what extent have they relied on poetic and other artistic means to depict it? Such questions ought to be the concern of media ecologists.

Nevertheless, in identifying the phenomenon of interiorization, media ecology has disrupted the prevailing inner-outer binary construction. In focusing on the mediation of the external sensorium, the field recognizes that the sensorium not only *communicates* selves, it also works to *shape* selves, and it is the internal shaping of selves that media ecology can help us to understand better and, in doing so, to respond more completely to prevailing dualistic thought. As we learn more about the nature and substance of the interior sensorium vis-à-vis what we have already understood about the "exterior" sensorium, we stand to grow in awareness that the spiritual and the bodily are not separate spheres of existence but collaborate in facilitating the fullness of human experience.

Thus, a major justification of exploring the "interior sensorium" is to advance the field's concern with the full human experience, which includes not only the natural, corporeal world, the human (exterior) sensorium, which can be altered by media, but also the interior world—the senses of the soul—which, insulated from the media, can restore the natural senses. As a Carmelite hermit and personal friend said, "we need to close the shutters of our natural senses in order to activate the supernatural senses of the soul."[26] Applied to media ecology, the field would, without discounting the operations of the external sensorium but to enlarge our understanding of them, dive interiorly to recover the spiritual senses. Doing so can extend the field's contribution in overcoming the deleterious effects of Cartesianism, of rationalism, and the lingering effects of other dualisms[27] and enlarge our understanding of the joint sensoria and our integrated human experience.

Study of the "senses of the soul" can show us, in fact, how the interior dimensions relate to the exterior. De Chardin was an early proponent of recognizing the concomitant function of internal and external modes of being: "The time has come to realize that an interpretation of the universe—even a positive one—remains unless it covers the interior as well as the exterior of things; mind as well a matter."[28]

The interior and exterior sensoria collaborate. Ong has helped us to see that "all exteriority, though utterly real in itself, ultimately faces inward through the human psyche (Hopkins, 144)." De Chardin saw the natural, external world as an outward expression of the interior world:

> The number of bones, shape of teeth, ornamentation of the integument—all these 'visible characters' form merely the outward garment round something deeper which supports it… To write the natural history of the world, we should need to be able to follow it from within… Right at its base, the living world is constituted by consciousness clothed in flesh and bone.[29]

Further investigation into the "senses of the soul" promises to shed light on the interior life in such a way that overcomes the bifurcation of mind and body. With Gregory of Nyssa, such study will help us to correct the "discontinuité between corporeal and interior senses and those who urge the possibility of a 'transfiguration' of the 'sens corporels.'"[30] *The third justification for dedicating more focused attention on the interior sensorium, therefore, is to aid in overcoming the disjunction between spiritual and carnal senses that persists in intellectual thought.*

A fourth justification, parallel to its contribution to overcoming *philosophical* dualism, *the exploration of the interior sensorium also contributes to overcoming epistemological dualism.* In other words, examining the senses of the soul is justified because of its potential epistemological value. An outcome of dualistic philosophy is that in studying the natural, material world, science bifurcated reality. A dualistic epistemology has persisted particularly in Western society for millennia. From the Ancient World's binaries of appearance vs. reality, truth vs. falsity, and good vs. evil to the vestiges of Gnosticism that regards matter as evil[31] and to Iranian and later Western Manichaeism that held a spiritual world of light in opposition to a material world of darkness, epistemological dualism has enjoyed virtual hegemony in our intellectual tradition. This mode of knowing separated subject and object; observer and event; knower and the known; thinker and thought.[32] As de Chardin stated, scientific inquiry tended to look at matter as a separate sphere from human experience "as though it were permissible for us to break off a fragment and study this sample apart from the rest."[33] But Ong helped us to see that an epistemology in which a fragment of reality is broken off to study does not accurately reflect the essential ecology of human experience, in which "interior" and "exterior" are understood as existential categories.[34] Werner Heisenberg, one of the pioneers of quantum mechanics, sounds the alarm over epistemological dualism: "From the very start we were involved in the argument between nature and man in which science plays only a part, so that the common division of the world into subject and object, inner world and outer world, body and soul, is no longer adequate and leads us into difficulties."[35]

Likewise, Albert Einstein helped us to overcome the time-space binary in demonstrating the relativity of one to the other. Wilber has characterized such epistemological binary as "symbolic knowledge." It is a knowledge that Korzybski indicted in his famous dictum: "the map is not the territory." In contrast to symbolic knowledge, Wilber borrowed the term "intimate

knowledge" to describe direct or non-dual knowledge.[36] Applying the intimate, non-dual epistemology to spiritual pursuits, which relates to a media ecological investigation of the "senses of the soul," Franciscan Richard Rohr typifies the "intimate knowledge" of the sort that would drive a study of the interior sensorium: "To have a spiritual life is to recognize early on that there is always a similarity and coherence between the seer and the seen, the seekers and what they are capable of finding. You will seek only what you have partially already discovered and seen within yourself as desirable. Spiritual cognition is invariably re-cognition."[37]

Eric McLuhan pointed us to a hermeneutic form in which meaning is obtained directly. Of the "anagogical" interpretative lens, he writes:

> Unlike the historical, allegorical, and tropological senses of Scripture, the anagogical sense does not consist of ideas: it is constituted as direct experience, one generally regarded as ineffable and beyond words or explanation. The reader puts on, or enters into, the passage of Scripture so completely as to become it. He transcends mere intellectual understanding and attains, through contemplation, a state of knowing through is whole being.[38]

In short, investigating the senses of the soul can help to repair the excesses of Cartesian, empiricism, rationalism, and other forms of dualism both philosophically and epistemologically. It can also continue media ecology's long history of exploring the human conscience and in understanding the interplay of media and human sensoria, including those of the senses of the soul.

Notes

1. Walter Ong, *The Presence of the Word: Some Prolegomena for Cultural and Religious History,* (New Haven: Yale University Press, 1967), 6.

2. Walter Ong, *Orality and Literacy: The Technologizing of the Word,* (New York: Methuen, 1982).

3. Marshall McLuhan, *The Medium is the Massage*, (New York: Bantam Books, 1967), 74-75.

4. Neil Postman, *Teaching as a Conserving Activity,* (New York: Delacorte, 1979), 39.

5. Pierre Teilhard de Chardin, *The Phenomenon of Man* (New York: Harper Perennial, 2008), 261.

6. Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, (Toronto: University of Toronto Press, 1962), 153.

7. Eric McLuhan, *The Sensus Communis, Synesthesia, and the Soul: An Odyssey*, (New York: BPS Books, 2015).

8. Personal correspondence, May 9, 2018.

9. Ken Wilber, *The Spectrum of Consciousness,* (Wheaton: The Theological Publishing House, 1985).

10. Lama A. Govinda, *Foundations of Tibetan Mysticism,* (New York: Samuel Weiser, 1973), 148.
11. de Chardin, *Phenomenon of Man,* 169.
12. de Chardin, 220.
13. de Chardin, 25.
14. Wilber, *The Spectrum of Consciousness,* 59.
15. Bernard Lonergan, *Method in Theology,* (Toronto: University of Toronto Press, 2013), 112.
16. Bonaventure, *The Works of Bonaventure,* (Mansfield Centre : Martino Publishing, 2016), 43.
17. Henri Nouwen, *Discernment*, (New York: Harper One, 2013), 66.
18. Richard of St. Victor. *The Twelve Patriarchs. The Mystical Ark. Book Three of the Trinity,* trans. G. A. Zinn, (New York: Paulist Press, 1979).
19. de Chardin, *Phenomenon of Man,* 33.
20. George E. Demacopoulos, "Gregory the Great," in *The Spiritual Senses: Perceiving God in Western Christianity*, eds. Paul L. Gavrilyuk and Sarah Coakley, (New York: Cambridge University Press, 2012), 84.
21. Matthew R. Lootens, "Augustine," in *The Spiritual Senses*, 66.
22. Nouwen, *Discernment*, 118-19.
23. Wilber, *Spectrum of Consciousness*, 20.
24. Lonergan, *Method in Theology*, 357.
25. Eric McLuhan, *Sensus Communis*, 55.
26. Personal conversation, May 20, 2018.
27. John Paul II, *Man and Woman He Created Them: A Theology of the Body,* trans. M. Waldstein, (Boston: Pauline Books & Media, 2006), 96.
28. de Chardin, *Phenomenon of Man*, 35-36.
29. de Chardin, 150.
30. Sarah Coakley, "Gregory of Nyssa," in *The Spiritual Senses*, 43.
31. John Paul II, *Man and Woman*, 96.
32. Wilber, *Spectrum of Consciousness*, 29, 37.
33. de Chardin, *Phenomenon of Man,* 43.
34. Ong, *Presence of the Word*, 118.
35. Werner Heisenberg, *The Physicist's Conception of Nature*, (New York: Harcourt, Brace and Company, 1958), 24.
36. Wilber, *Spectrum of Consciousness*, 42.
37. Richard Rohr, *The Naked Now: Learning to See as the Mystics See,* (New York: The Crossroad Publishing Company, 2016), 159.
38. Eric McLuhan, *Sensus Communis*, x.

References

Bishop, John Melville and Harald E. L. Prins, dirs. *Oh, What a Blow that Phantom Gave Me!* 2003; Watertown, Documentary Educational Resources. 2003. DVD.

Bonaventure. *The Works of Bonaventure.* Mansfield Centre: Martino Publishing, 2016. Originally published in 1960.

Coakley, Sarah. “Gregory of Nyssa.” In *The Spiritual Senses: Perceiving God in Western Christianity*, edited by Paul L. Gavrilyuk and Sarah Coakley, 36-55. New York: Cambridge University Press, 2012.

de Chardin, Pierre Teilhard. *The Phenomenon of Man.* New York: Harper Perennial, 2008. Originally published in French in 1959, first published in English in 1959.

Demacopoulos, George E. “Gregory the Great.” In *The Spiritual Senses: Perceiving God in Western Christianity*, edited by Paul L. Gavrilyuk and Sarah Coakley, 71-85. New York: Cambridge University Press, 2012.

Gavrilyuk, Paul L. and Sarah Coakley, eds. 2013. *The Spiritual Senses: Perceiving God in Western Christianity.* New York: Cambridge University Press, 2012.

Govinda, Lama A. *Foundations of Tibetan Mysticism.* New York: Samuel Weiser, 1973.

Heisenberg, Werner. *The Physicist's Conception of Nature*. New York: Harcourt, Brace and Company, 1958.

Innis, Harold. *The Bias of Communication.* Toronto: University of Toronto Press, 1951.

John Paul II. *Man and Woman He Created Them: A Theology of the Body.* Translated by Michael Waldstein. Boston: Pauline Books & Media, 2006. Original work published in 1997.

Lonergan, Bernard. *Method in Theology.* Toronto: University of Toronto Press, 2013. Original work published in 1972.

Lootens, Matthew. R. “Augustine.” In *The Spiritual Senses: Perceiving God in Western Christianity*, edited by Paul L. Gavrilyuk and Sarah Coakley, 56-70. New York: Cambridge University Press, 2012.

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

McLuhan, Marshall. *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto: University of Toronto Press, 1962.

McLuhan, Marshall. *The Medium is the Massage*. New York: Bantam Books, 1967.

Nouwen, Henri. *Discernment.* New York: Harper One, 2013.

Ong, Walter. *The Presence of the Word: Some Prolegomena for Cultural and Religious History.* New Haven: Yale University Press, 1967.

Ong, Walter. *Orality and Literacy: The Technologizing of the Word.* New York: Methuen, 1982.

Ong, Walter. *Hopkins, the Self, and God*. Toronto: University of Toronto Press, 1993.

Postman, Neil. *Teaching as a Conserving Activity.* New York: Delacorte, 1979.

Postman, Neil. *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*. New York: Penguin Group, 1985.

Richard of St. Victor. *The Twelve Patriarchs. The Mystical Ark. Book Three of the Trinity.* Translated by G. A. Zinn. New York: Paulist Press, 1979. (Original works published in 1153).

Rohr, Richard. *The Naked Now. Learning to See as the Mystics See.* New York: The Crossroad Publishing Company, 2016.

Wilber, Ken. *The Spectrum of Consciousness.* Wheaton, Ill: The Theological Publishing House, 1985. Fourth printing, 2008.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 187-204

THE COGITATIVE IN CORNELIO FABRO: FOR A NON-DUALIST PHILOSOPHY OF PERCEPTION

Juan Jose Carlos Sanguineti
Pontificia Universita della Santa Croce

Originally published in Spanish in *Filosofia y Teologia* 34 (2014): 437-458, https://philpapers.org/rec/SANLCE-2.

This paper considers the relevance of the theory of the cogitative power in Aquinas, as highlighted by Cornelio Fabro during his early research in the fourth decade of the past century, in contemporary neuropsychological studies, and particularly as a specific way of overcoming a dualistic approach in the psychology of perception. The thesis is coherent with an anthropological view based on the substantial unity between soul and body. As a consequence, the capacities of the cogitative faculty (estimative in animals) involve a special account of perception, irreducible to pure thought and to sensations as well, an account that is present in the psychological view of M. Merleau-Ponty and J. J. Gibson.

1. INTRODUCTION

Thomas Aquinas's conception of the cogitative and estimative powers, assumed from the elaboration made by the Arab philosophers of Aristotelian psychology - especially Averroes – did not receive much attention from the Thomistic tradition for several centuries.[1] As is known, Cornelio Fabro in his study Perception and Thought (1941)[2] took it to a gnoseological foreground. Its importance can be calibrated when we consider that this animal and human faculty is at the core of the interpretation of perception as a fundamental cognitive moment, in which sensitivity, affectivity and intelligence converge in a dynamic way. This conjunction is not the mere mechanical relationship between separate psychic "modules", but rather is the result of a maturation of knowledge, taken in its increasing complexity throughout life. Thanks to this process, the various human functions or faculties - also animals, at their level - remain fused according to a form of participatory unity. In this way, thought can be embodied in the senses, following precise paths and not in any way, while the senses, on the other hand, can be elevated to the level of thought. Something analogous applies to so many other psychosomatic levels, such as the unity between intuition and cognitive elaboration, between intelligence and will, between will and sensitive emotions, and thus for many other anthropological and gnoseological dualities.

In this article, I would like to dwell on two aspects of the cogitative, which are highlighted by Fabro and very significant in his efforts to bring Aristotelian-Thomistic psychology of perception closer to the modern psychological vision of the 40s of the 20th century, something that can still be said with more reason regarding the results of contemporary neuroscience .[3]

The two aspects are: first, the importance and actuality that can be envisioned for the function assigned to the cogitative in attention to the current research of the neuropsychology of perception, which highlights a definitive overcoming of the drastic dualism between rational thinking and sensitive perception; second, the correspondence between the gnoseological thesis of cogitation and the anthropological vision of the complex unity of man, made possible ontologically - as a starting point - thanks to the Aristotelian notion of hylomorphism. That notion is far from the pure objective analytical method, for which the idea of an intrinsic union between form and matter is understandable.

2. THE IMPORTANCE OF THE THESIS OF THE COGITATIVE FOR THE BIOPSYCHOLOGY OF PERCEPTION

The disadvantage of the theory of cogitation, if one can speak like this, is perhaps its rather strange name, far from popular psychology and absent in modern psychological studies. We understand more easily what the ancients tell us about imagination or memory because these denominations are maintained in the current psychological vocabulary, both popular and scientific. Speaking of "cogitative" sounds remote, and thus favors the impression that it is a denomination of times gone by. However, if we attend to the functions assigned to this faculty, we are surprised by the sharpness achieved by European Arab and medieval psychology when working according to Aristotelian guidelines. The cogitative was not proposed in a lazy and a priori way to solve problems verbally, but as a result of empirical observations on the modalities of knowledge.[4]

The existence of cogitation is proposed based on the need to attribute to the perceptual powers the ability to recognize in the perceived environmental objects functions, utilities and relationships, beyond the reception of the sensitive data corresponding to the formal objects of each external sense (such as light and colors, sound, flavors, etc.) and even its perceptual integration by the work of the common sense admitted by Aristotle and Thomas Aquinas.

It is not necessary to promptly redirect such acknowledgments to the level of intelligence, thus depressing the value of sensitive knowledge, according to empiricist reductionism. It is not enough to remain in the reception of qualitative-quantitative data (such as the color distributed on a surface or diffuse is a transparent medium) in a structured way (for example, by visually recognizing a face, a flower, a garden). The same sensory power, in man but also in animals, must be able to capture, even in a non-intellectual or non-conceptual way, the role and concrete meaning of objects seen in the environment, such as

recognizing the face of an animal as expressive of a subjective intent, or a garden as a place adjacent to a house where you can walk, and things of this kind.

2.1 CONSEQUENCES OF THE MARGINALIZATION OF THE COGITATIVE

The abandonment of Aristotelian psychology in the initial stages of modern science (mechanicism, rationalism, empiricism) set the premises for a disjointed and dualistic conception of perception. It could even be said that the same perception was lost, as soon as its functions were directly attributed to reason. This impoverishment of the perceptual phenomenon, reduced in part to thought, joins another symptom of rationalism, which is the devaluation of intentional animal life, reduced to pure physiology (to zoology).

If animals have only configurative perceptions, but no significant acknowledgments, then it may surprise that, for example, animals are able to discriminate between other species of animals (or between natural kinds or natural classes), as this would seem to imply that they have concepts. If so, the animals will recognize that individuals of a certain species, for example, will almost always attack them, which could lead to the assumption that they have beliefs and that they act rationally according to them (for example, because they develop defense strategies against such species).[5] But attributing concepts, beliefs and reasons to act to animals, that is, assigning them authentic intelligence, is always in continuity with the rationalist tradition.

Only an adequate theory of sensitive perception is able to maintain a balance between the "rationally" practical behavior of animals and the universal scope at all of human rationality. More generally, only a tight philosophy of animal life provides sufficient mediation between the spiritual and the material that is able to avoid the drastic dualism of opposing human consciousness to the "unconscious" and "irrational" material reality. The opposite reaction to this extreme is to elevate animals above what they really are, by granting them self-awareness, values, dignity and rights, as if there was no important distinction between human rational animals and non-human animals, that would be "rational" in their own way. The distinction between "people" and non-people (non-human animals) is thus very attenuated.

In an impoverished version of sensitive knowledge, typical of classical empiricism, the senses would register sensory impressions – the sense-data or "data of the senses" – caused by the physical impact of the stimuli on the sensory organs. These subjective impressions – unintentional – such as temperature, luminosity, loudness, would constitute an agglomerate in need of interpretation. The latter would be the work of intelligence.[6] With this version of knowledge, one does not see why intelligence should adapt to reality, although rationalism initially had the temptation of parallelism, according to which, rational elaborations would miraculously coincide with the intelligible structure of reality. In a second moment, with more coherence, it was more natural to think

that intellectual interpretations would be only constructions, synthetic ways of making a human reading of reality, which of his would be unknowable because he lacked his own intelligibility.

The way to avoid this gnoseological distortion, generating pseudo-problems and false solutions, is the analysis of perception at its various levels. It is significant that Fabro begins his volume Perception and Thought with a prolonged comment of the simple fact that "I look out the window and see a thing, a tree, the sky."[7] The problem must arise precisely along this line.

> The expression: 'I see the house, the tree, the sky...' has been in the past and it is still for many occasion of an insurmountable scandal. I 'see' colors, or at most colored figures. I ‘conceive', I do not see, the tree, the house, the sky; I do not see them but I only see qualified surfaces to which the mind, by its story and with its means, 'captures', under the appropriate guarantees, the character of reality and substance.[8]

Sense-data theory weighed heavily on modern gnoseology, especially in the Anglo-Saxon field, although not exclusively.[9] It is a vision of solidarity with Cartesian dualism, today very criticized, but not completely overcome. Fabro already noticed it in 1941, the year in which he wrote the following:

> The obstacle, like the core, for an adequate solution of the problem of perception in the field of modern philosophy, always finds itself in the dualism and diversity of thought and experience, inaugurated by Descartes and systematized in the heterogeneity of noumenon and phenomenon in Kant.[10]

The author of Perception and Thought called attention to the impoverishment of gnoseology in Thomistic scholasticism because of the abandonment of the function of cogitation, so that the relationship between the senses and the understanding was reduced to a simple relationship between the visual imagination ("cinematographic"), that of phantasms, and the abstract task of the intellect, while perception was simplified and attributed only to Aristotelian common sense.

> Therefore, the fact that the cogitation is almost ignored by the neo-scholastics is surprising, and perhaps this is not the last reason why, after having worked around the gnoseological problem, they have not often achieved fruits corresponding to such great waste of energy and why this problem still remains on the high seas, they have been content to talk about common sense, fantasy and memory.[11]

How can one think, for example, that the concept of bread is formed abstractly from the simple image of bread, and not instead, as is much more

plausible, of a categorization based on the complex and dynamic experience of the object “bread”, which is not properly representable and intentionally incorporated into the subject's experiential life? How is it possible to believe that this abstraction is made from remembered images, and not, instead, from non-viewable experiences (such as the intentiones insensatae of the scholastics, which we could translate as "non-representable", such as the intentio of utility or of past being)?

In conclusion, the importance of admitting the psychological functions of the estimative for animals and of the cogitation for human beings is that in this way high capacities of sensory psychism are recognized, which would otherwise be ignored, in the case of the animals, or would be rashly attributed to the intelligence or rationality of man, or further, even more misguided, we would assign the animals conceptual faculties. For those who are unaware of the theme of the faculties of Thomistic psychology, it is enough that they realize the importance of sufficiently accounting for the complex experience of animal and human sensibility and in this way, a reductive version of sensitive knowledge.

2.2 SENSATIONS AND PERCEPTION

The theory of perception is a point of arrival but also of departure, because we intentionally know percepts, or significant structures given, that are indicated with sensitive verbs, such as seeing, hearing, etc. and not with the verb “feel”. Normally, sensations are not isolated from perceptions, but are parts of them. The verb "feel" usually indicates rather the sensitive consciousness of the body itself or its vegetative acts as senses, that is, without an explicit intentional reference. It is normal to say "I feel a pain" (it is less frequent to say "I perceive a pain"), and instead it is natural to say "I see a tree" and it would be rare to express itself with phrases like "I feel a tree".

The sensation is rather immanent (it is my impression, my sensation), while the perception is transcendent, that is, intentional. External things are perceived and also perceived as things or entities (a tree, a park, a fruit), and not so much isolated properties, and this is also true in animals, although the latter do not perceive things as such, that is, with the recognition of its essence. Certainly, we lack the words to say what it is that the animal perceives when it sees, for example, a person, without recognizing it as such. Obviously it captures a perceptual unit and not a conglomerate of accidents. We have no choice but to say, for example, “the dog has seen Fulanito,” or “has recognized that he is facing a cat,” even when we know that he has no universal concept of a cat, and that he does not recognize Fulanito as such a human person.

The word feel can sometimes be used to indicate the uptake of sensitive qualities of external things, but it is more frequent to do so when those qualities physically affect our body, as with the “lower” senses such as touch, taste and smell. So we usually say “I feel the perfume of this rose”, “I feel the cold air”, “I feel the pressure of this body that pushes me”, “I feel a prick”, “I feel this salty

food", all expressions that denote the immanence of the sensitive act in our body and not so much the transcendence of the body that has become accessible to our sensitive knowledge.

In these considerations I have followed the indications of our current cognitive terminology, which are often a useful guide for us to correctly interpret the phenomena. The classics did not use a systematic distinction between "sensation" and "perception." Aristotle uses the term aisthesis interchangeably for what we call today sensation and perception. Hence, the traditional term of senses, used for the faculties of sensitivity, is taken from the act of "feeling." However, in Thomas Aquinas there is already some difference, not systematic, between the use of the Latin verbs sentire and percipere.[12] Modern psychology, on the other hand, clearly distinguishes between sensations and perceptions.

The perception is not born of the simple sum or combination of sensations, as the old empiricist associationism maintained. It is an original and emergent act, although it presupposes the activation (immutatio, in the usual Thomistic terminology[13]) of the external or peripheral senses, as well as the sensations related to the body itself (kinestesic, visceral, muscular, painful, etc.). To become aware of the sensations included in the perceptual operation, a quasi-reflexive effort is often needed, for example, to notice what kind of sensations are present in our psyche when we perceive something. So we will say that, when we see a house, we feel our eyes, their movements, or the amount of light we receive. There is, therefore, a cognitive (intentional) primacy of perception with respect to sensations.

2.3 COGNITIVE IMMEDIACY AND PSYCHOLOGICAL ELABORATION IN THE UNDERSTANDING OF THINGS

The subjective conviction, of realistic reach, of the immediacy of the sensitive/intellectual perception of things ("I see this person", "I get their benevolence and their virtues"), fundamental to the thesis of the immediate realism of knowledge, does not eliminate the complexity of psychosomatic operations, often unconscious, with which the mind - that is, the framework of cognitive faculties, also in connection with the emotional dimension and with motor skills - gradually matures, in order to finally establish the connections necessary to allow the emergence of perceptual awareness and its development and extension to wider and more complex cognitive and behavioral pictures.

It seems relevant, in this sense, a distinction introduced by Fabro between the immediacy of the content and the mediation of the functions.[14] This point is valid for all gnoseology and psychology, but I think it is important to remember when we try to explain how an uptake is produced as simple and immediate as the recognition of another person, which brings together intelligence with the senses and with all cognitive and emotional resources. The so-called "mediate realism", often linked to phenomenology and empiricism and sometimes tending to the idealistic, confuses functional mediation with a rational mediation that

would be carried out by the conscious subject with perhaps implicit reasoning, or that perhaps is attributed a little gratuitously to inferior psychological functions or even to the brain. Theories of perception,[15] such as associationism, constructivism, connectionism, computational models of perception (for example, that of David Marr[16]), as well as the corresponding neurophysiological descriptions and explanations, illustrate how successive integrations of the input data of the peripheral senses or the internal sensitivity of the organism. Thus, the formation of more elaborate representations is reached, which in the end end up building a perceptual scheme of perceptual things and even of the body itself or its parts.[17] Marr, mentioned above, talked about mathematical computations that the mind or brain would perform. Fabro knows in the book that we are following, for example, the perceptual theory of the unconscious inference that the mind would make to move from fragmentary data to the collection of a perceived totality.[18] We cannot enter into the theme of tension between the elementary explanation, which sees perception as a simple construction of a totality, and the thesis that, on the contrary, sustains the primacy of the emergence of perceived totalities, at which point insisted Gestalt psychology. It is enough to point out that the fact that a perception is elaborated little by little, in a process of perceptual maturation over time, is compatible with perceptual immediacy, which refers to what and not how.

Fabro's solution to certain objections against the immediacy of perception (how to explain perceptual errors, illusions of perception, hallucinations, if perception simply turns to the real object without having anything subjective?) is precisely the distinction between the immediacy of perceived content and the multiplicity and complexity of cognitive functions. These functions are not ordinarily noticed, just as when opening a door we do not notice the amount of muscles and physical parts that are at play in the movement of the hands that open the handle.

Representations exist, without the need for us to be representationists. They allow us to perceive and are not the perceived. They do not oppose immediate external intentionality. Moreover, in many cases they are not aware. But they are explicitly noticed, in one way or another, at the time when errors and functional imbalances occur, or when we notice that others do not perceive as we do, due to differences of the biological or cultural species, or due to the formation of different perceptual habits (for example, more rich detail for experts in a certain field of knowledge).

We can then distinguish between the inferential interpretation of a perception (this is how we know that the terrestrial rotation explains the perception of the apparent celestial movement) and the immediate "interpretation" of the perception, by which we suddenly recognize a person and many of his qualities (and we don't just grasp his body to “infer” that he is a person, as gnoseological rationalism might argue). The cogitative is for St. Thomas a collateral faculty, that is, it makes continuous comparisons (collationes) between different aspects of concrete experiences, such as a heuristic coming and going, almost "rational" (that is why it was called “cogitative” or “reasoner”). Their continuous

confrontations between images, memories, new and old experiences,[19] suggest a kind of practical rationality, subject to the mediations of a non-abstract and non-explicit logic.

This is the basis, presumably, for which it was sometimes thought that complete perception was something like the fruit of inferences or unconscious syllogisms (which would sometimes be probabilistic or based on implicit statistics). The cogitative is a dynamic capacity. Their continuous confrontations are natural, spontaneous and not necessarily conscious, although they can be guided by conscious instances of thought. This happens ordinarily in every process of maturation of perceptions and the progressive appreciation of their meanings in life.

It can also be added that, once these processes have been completed, since they are enlightened by intelligence in a rigorous sense, the intuitive – obvious – capture of an individual, person, or event in the concrete immediately occurs: the recognition of this friend, this colleague, this restaurant, etc., prior to the explicit judgments that can be made in this regard. We are in the order of an immediate pre-judgmental apprehensive knowledge, which therefore also has to do with what we consider to be immediate evidence of a perceptual order, such as knowing that we are in a street, in a room, or before these or those specific people.

In this way, the theory of cogitation allows explanation of not only the perception, but also the intellectual apprehension of the material concrete, something related to the immediate intellectual capture of the existence of the world, prior to the formulation of the notions of entity or complexes of entities. Fabro dedicates to this theme, as we know, a chapter of his study on cogitation.[20]

This point had been obscured in the scholastic philosophy because of the thorny controversies, with its load of technicality, around the issue of direct or indirect intellectual knowledge of the concrete singular, in the context of Thomistic, Scotist and nominalist authors. The subject is naturally related to the issue of universals. The Thomistic thesis of the indirect and reflexive intellectual knowledge of the singular, motivated by the Aristotelian version of intellectual knowledge, could suggest that the intellect would immediately capture only abstract and universal essences, and that its connection with the senses would be somewhat less natural, or that at least it was a problem. Actually, the most obvious thing is that we conceptually grasp concrete things. The gnoseological problem today is rather how to explain the abstraction of the universal.

St. Thomas, assuming the Aristotelian philosophy, assumes that we conceive universals, and therefore "his" problem is how to explain that these universals join the sensitive knowledge to give rise to the intellectual understanding of the singular. However, if we place ourselves in the perspective of the ordinary knowledge of the people, the immediate thing is the understanding of the singular things and the problem is rather to explain how the universals arise.

Fabro recognizes and assumes the position of Thomas Aquinas, while pointing out that the theory of cogitation is essential to solve it, if we do not

want to fall into nominalism, and warns that, on the contrary, the underestimation of this Thomistic point complicates a lot of things. The decisive point in Fabro is not simply the issue of the cogitative, but the thesis that the cogitative implies a genuine participation of human sensibility in universal intelligence.

2.4 THE COGITATIVE AND THE BRAIN

As is known, Thomas Aquinas, following the Arab medicine, assigned the headquarters in the "middle part" of the brain, where the middle ventricle is located (what we now call the third ventricle).[21] The brain, therefore, is the physical organ of the cogitative (in some sector of its own). The other high sensory functions (memory, imagination, common sense) are also located in the brain by classical authors, according to the old "ventricular theory".

This fact, although it belongs to the ancient physiology, indicates that in line of principle the high sensory functions have a cerebral radiation for the Aquinate, to the point that for him the differences of intellectual ingenuity between people have their cause in the establishment of cerebral variables of the cogitative, together with the exercise and the formation of habits.[22]

The specific functions assigned by Thomas Aquinas to the cogitative/ estimative are:

1) The capture of the meanings of environmental things, perceived in animals in order to their instinctive, "meaning" means relational aspects "not representable" by simple sensory uptake, but "estimated" or "valuable." For example, the utilities of things, their eventual danger, their social role - such as being a child or a parent, or possessing a subordinate or dominant position - and things of this kind.[23]

2) The preparation of the concrete experience, in its dynamism, so that the human agent intellect can exercise its illuminating and abstractive function.[24]

3) The understanding of specific individuals as they possess in a unique and unique way the metaphysical characteristics that intelligence captures in universal: recognition of this man as such, of this particular brother, of this concrete action as a lie or an act of charity, etc.[25] Animals do not apprehend universals, but they do perceive categorized objects, because they distinguish, for example, between individuals of both species, insofar as they have to do with their practical environmental environment, that is, related to their instinctive behavior: nutrition, aggression, sexuality, etc. In coherence with what we are seeing in Thomas Aquinas and Albert the Great, this recognition can be assigned to the estimative. Many of these points are found equally in Averroes, except for important differences regarding the nature of understanding, where, as we know, Thomas Aquinas distances himself from the Arab philosopher.

4) The estimative / cogitation moves the sensitive appetite - in man, under the direction of universal reason - and thus constitutes a principle of behavior. Thomas Aquinas gives the example of capturing the danger of the wolf that

arouses fear and thus causes flight. Therefore, the cogitative has to do with the concrete apprehension of the practical reason that controls human behavior.[26] On the other hand, as for Thomas, the will does not move the human body but through sensitive appetites,[27] we can also conclude that the will, universal rational appetite, does not move the body without the mediation of cogitation and its extension to the field of human emotion. The motor control of the body depends on the latter.

These aspects suggest that, in short, cogitation, in its close union - as a bridge – between universal intelligence and will, on the one hand, and sensitivity as a whole, on the other hand, becomes like a rationality of the concrete, in its dynamism and continuous mobility. We already saw in the previous section that, when the mature results are reached and incorporated into the memory, the procedural elaboration is compatible with the immediacy of what appears as obvious. And so the cogitative is both mobile rationality of the concrete and immediate intuititive capacity of certain apprehensions acquired by experience. All this is prior to the formulation of explicit judgments and syllogisms. The functions we are considering are not necessarily linguistic. Many times they are pre-linguistic. Therefore, they can be relatively unconscious or spontaneous, just as we do not know for sure how a series of concrete ideas may suddenly arise in our minds.

Thanks to contemporary neuroscience, we know how these psychic processes are distributed in brain circuits. It is not possible here to go down to details on such a broad topic. The acquisition of values in association with perception, emotionality and motor skills is complex and puts into action various brain sectors. It is necessary to specify what kind of value it is, since some have to do with food (which leads, for example, to learning, with a certain innate base, which are the edible substances and which are not), or with sexuality, or with aggressiveness, or with many other aspects. The cortical and subcortical circuits of motivation have to do very directly with the functions classically assigned to the estimative / cogitative. Obviously, the psychosomatic circuits that put into action the associative cortical areas, the hypothalamus, the limbic system and the prefrontal and motor areas do not work exactly the same in subhuman animals and in man.

To give just one example related to the brain, today we know how, thanks to the discovery of the mirror neurons,[28] many sensory perceptions capture teleological actions of other subjects in a sensory-motor way, that is, they give rise to an imitation of the percipient subject. Less imaginative of the same action captured externally. This phenomenon is congruent with the function of the estimative/cogitation that involves apprehending in the perceived thing not only its spatial or qualitative configuration, but its intent or practical meaning, for example, capturing a movement as the execution of a task, at the same time that this is imitated or reflected internally by the percipient subject.[29]

2.5 ANIMAL INTELLIGENCE

The animal estimative is not simply reduced to what we call "instinct." This refers, in its usual meaning, rather to the innate appetitive inclinations of animals. The estimative is a form of practical and concrete intelligence – it can also be called "concrete rationality" – whereby the animal captures what is relevant in its environment based on its needs and in the face of its future performance. This acquisition sometimes involves learning that is incorporated into memory. In many cases it involves making associations based on conditioning and reinforcements.[30]

It is remarkable the "modernity" with which Albert the Great conceives the dynamism of the animal estimative, a faculty that moves through emotions, but also has imagination and memory. Affectus (emotion) and motus (motor action) are born in the animal from the assessment made by the estimative and not from the single imagination or vision of a food.[31] Animals do not choose deliberately, but they do choose some things and reject others based on long-term tasks, such as the construction of burrows or the provision of food for a long time. They perform these tasks with their imagination thanks to the estimating power that discriminates between images and "intentions" (as estimated by this faculty).[32] When an injury occurs in the brain area where the estimative is based, animals can no longer make good discriminations between forms and "intentions." Thus their behavior is disturbed (regimen vitae) and they become psychically ill (they become angry or furious).[33]

In short, the estimative of animals appears as the highest sensory faculty. He directs his behavior together and unitarily, mediating between perception and emotion. In man this is done thanks to universal reason and will, as long as they are linked to the cogitative and the passions.

2.6 A COMPARISON WITH MERLEAU-PONTY AND GIBSON

To end these considerations, I will now indicate two important authors of the twentieth century regarding the issue of phenomenology of perception: Merleau-Ponty and Gibson.

Maurice Merleau-Ponty (1908-1961), as is known, applied the phenomenological method to the psychology of perception. The phenomenological (Husserlian) consciousness of the essential objects in Merleau-Ponty is transformed into an existential perception. The Phénoménologie de la perception of Merleau-Ponty is from 1945, that is to say, it was published four years later than the Phenomenology of Perception of Fabro.[34]

The French author claims in this book, with numerous arguments, the primacy of perception, against the empiricist elementalism that gives a primary role, instead, to sensations. Talking about "pure" sensations disorients, because our sensations are not isolated, but are always given in a meaningful context - in

a sense horizon - that is given in perception.[35] Merleau-Ponty criticizes, in this sense, the precipitated appeal to the trial to explain the perception, typical of an intellectualist position: "the trial is usually introduced as what the sensation lacks to make perception possible."[36] According to this approach, to perceive would be to "judge", that is, when seeing some individuals from a window, it would be necessary to say that "I do not see them, but I judge that they are there,"[37] so that "perception is it transforms into a 'interpretation' of the signs that sensitivity provides based on corporeal stimuli a 'hypothesis' that the spirit performs to 'explain its impressions.'"[38] On these pages you can see a strong critique of intellectualism / empiricism which begins with Descartes and ends in idealism. On the contrary, notes Merleau-Ponty (in full agreement with Fabro), "there is a human act that in a single blow crosses all possible doubts to settle in the heart of truth: this act is the perception, in the broad sense of knowledge of existence."[39]

The other author that we can relate to the estimative is the psychologist James J. Gibson (1904-1979), known for his writing An ecological approach to visual perception (1979).[40] As in the case of Merleau-Ponty, this work is opposes, in a strictly psychological perspective - restricted to vision, but with a thesis that can be extended to the other senses - to the explanation that reduces vision - we could translate by "perception" - to an elaborative process of information, a process that would end for forging an "inner representation" of the object seen. According to Gibson, to see is not to have a retinal or cerebral representation or image that would then be attributed to the world, but rather is to immediately apprehend an environment inhabited by real and physical things ("ecological environment").

The environment is given to a moving subject who perceives physical things in relation to their practical utilities, a perspective for which Gibson proposes the English term, difficult to translate, of affordances. The affordances are the ecological functions or the potential uses of the objects with respect to the agents that perceive them, such as, for example, seeing the water as what serves us to wash, to drink, to swim, or to see the ground as a reality solid on which you can walk safely. The perception, therefore, is immediate, but it is related to the agent's potential actions on them: we perceive in the actions, at least potential (Gibson does not care to distinguish men from animals and does not refer to intellectual knowledge).

The Gibsonian notion of affordances coincides with the object of the estimative (and partly of the cogitative), although Gibson was not aware of it. Personally, I interpret the work of this psychologist as a contribution to the Thomistic theory of the estimative. I do not know if Fabro got to know this writing, which became belatedly famous, when Fabro was no longer engaged in the themes of Perception and Thought for a long time. The difference with the latter is that Gibson "does not want to know anything", something drastically, of perceptual elaborations - neither psychological, nor neural - while Fabro can assume them, without his immediate realism being attenuated, as we saw

above, thanks to its distinction between the immediacy of perceived content and psychological and functional mediation.[41]

3. STRUCTURAL ASPECTS: FORMALIZATION AND PARTICIPATIONS OF COGNITIVE FUNCTIONS

To understand the thesis of cogitation as a bridge between intelligence and sensitivity, it is necessary to admit the possibility that a source of information or, even more, that an act with a certain content may be formalized by a higher content, qualitatively heterogeneous, while in turn it is capable of formalizing an act with a lower and equally heterogeneous content. I speak of "high" and "low" with a certain hierarchical vision, that is, appealing to strata or levels. With Aristotelian terminology in a broad sense, one of these levels can be said formal with respect to a base that we can call material. The levels are cascaded, where a low grade can be formal compared to an even lower one, and at the same time it can be material with respect to a higher grade.

Only in this way can one understand why Fabro says, as the central thesis of his book:

> Perception is a certain 'synthesis' of sensitivity and thought. Better yet, rather than talk of synthesis, which sounds too much of extrincisity, let's say that the same perception is a thought, not pure and abstract, but as soon as it is immediately objectified in sensitive content, a thought that 'incorporates' experience itself, which is why it has been justly said that the essential moment in perception is the 'incorporation of meaning' (Michotte). Perception, therefore, is neither a pure sensation nor pure thought; rather, it is a 'lived thought', to which I cannot be strange the same pure thought , and without which no form of pure thought is possible.It is this immanence of the abstract in the concrete, and the corresponding incorporation of one into the other, those that enable both our thinking and our perception.[42]

The analytical thinking of a certain scientific tradition conceives ideas (and also things) as clearly defined - with a rigid univocity - and always separated from each other. Between two or more elements there could be only one distinction or one identity, but never a "participation of one in the other". An image, thus, is never a concept, and a concept can never be another concept. The material it can never be spiritual, just as the theoretical can never be practical, and thus following for all kinds of dualities (reason and faith, the human and the divine, etc.).

Without falling at the other end of undifferentiated confusion, in which the distinctions fade and eventually lose meaning (confusion between sensitivity and

intelligence, between psychism and corporality, between natural and sensitivity and intelligence, between soul and body, between the natural and the artificial), it should be recognized that some dimensions can formalize others, with an intrinsic communication relationship that we can call participatory.

The Aristotelian-Thomistic thesis of hylomorphism and the concept of dynamic (non-logical) participation are in solidarity with a vision of reality understood as a unit in complexity. For objective scientific thinking – typical of the rationalist method of making philosophy – these notions are incomprehensible and even scandalous (they would be "vague", "not very rigorous", etc.). Reality clearly shows the phenomenon of ontological formalization of hierarchical dimensions in the constitution of the living and, in general, in all reality it competes. A smile, for example, is both an incarnate act and a personal and communicative act, and not, instead, a causal concatenation of acts (of the body, of the spirit, etc.). A smile or a word does not contain a physical act "moved" by an act of the spirit, but is a single act that contains a high physical dimension - high sensomotor level - and an embodied spiritual dimension (intellectual and voluntary). Thus we can say that the spirit communicates with matter, is embodied in it, formalized, given to it in participation. The natural sciences cannot speak in these terms because of their reductive methodology, but remember that their vision is partial. The unity between these dimensions is an integration. In the case of knowledge, it is a perceptual fusion.[43]

The unity between the senses and the understanding is nothing more than a consequence of the substantial unity between soul and body.[44] Therefore, not only gnoseology, but also anthropology is at stake. This is how human reason can improve perception and take it to a higher level. It is understood how the animality of man is not identical to that of sub-human animals, but is transformed, in the sense of high, and this both in the intentional cognitive dimension and in the affective plane.

Thus it is understood, for example, how human sexuality can be intrinsically elevated to the spiritual and personal level, for which the mediation of virtues comes into play.

According to Thomas Aquinas,

> The cogitative and the human memory have this superiority [with respect to the estimative and the animal memory] not with regard to the sensory area, but because they have an affinity and closeness to the universal reason, some reflux [refluentiam]. They are not different powers, but the same ones that animals have, but elevated [perfectiores].[45]

Why should we say - Fabro wonders - that the human eye not only sees colors, but sees this or that other thing (a real substance, an essential property of a thing)?[46] His answer is that the ultimate reason is gnoseological participation as a dynamic unit among the powers.[47]

This point allows us to better understand the intimate union between human faculties. For example, the reciprocal belonging between intelligence and will (which allows to establish certain Trinitarian analogies, as Saint Augustine did). Very different is the static conception according to which intelligence and will would be like two "things" that simply interact in the individual.

Human faculties are not juxtaposed and are not extrinsic to each other - in a logical or purely analytical view - but rather "emanate" or sprout from the soul as from a source, according to a Neoplatonic perspective that sees the essence dynamically and that Saint Thomas fully assumes this order of "processions" is somewhat inverse with respect to the generative, that is, with respect to the order relative to individual development from more elementary material situations (evolution of the embryo until adult maturity).[48]

The dynamic consequence of this complex and stratified unit is a continuous exchange of information between the high and low levels of knowledge.

> This establishes a flow and reflux of the data of the cogitative in the understanding and of the data of the cogitative: for this reason, the first can understand the data of the experience, and the second can organize them in order to be included.[49]

In conclusion, the gnoseological theory of the cogitative of Thomas Aquinas is not only a happy notion that agrees with the orientations of contemporary neuropsychological research, but also contains important core points for gnoseological realism and for the anthropology of the unit of the person, and especially for a more definitive overcoming of rationalist dualism.

Notes

1. This is not the case, naturally, of the specific authors who have studied this faculty in St. Thomas, among which Fabro stands out. Cf in this regard, among others, R. Allers, “La vis cogitativa e la valutazione”, in *The New Scholasticism* 15 (1941) 195-221; G. Klubertanz, *The Discursive Power*, St Louis 3 (Missouri), The Modern Schoolman, 1952; M. Manzanedo, “La cogitativa del hombre y la inteligencia de los animales”, en *Angelicum* 67/3 (1990) 329-363; L. Mazzone, La vis cogitativa nella Antropologia di San Tommaso d’Aquino 1995; M. A. García Jaramillo, *La cogitativa en Tomás de Aquino y sus fuentes*, Pamplona, Eunsa, 1997; A. J. Lisska, “A look at inner sense in Aquinas: A long-neglected faculty psychology”, in *Proceedings of the American Philosophical Association* 80 (2006) 1-19; H. Muszaiki, “El objeto formal de la vis cogitativa en Santo Tomás de Aquino”, en *Sapientia* 70/235 (2014) 75-102; J. d’Àvila Juanola Cadena, *La estimativa, facultad nuclear de la vida psíquica*, en https://www.academia.edu/3478117/La_estimativa_facultad_nuclear_de_la_vida_ps%C3%ADquica [consultado: 22-12-2014]. D. de Haan, “Perception and the Vis Cogitativa: A Thomistic Analysis of Aspectual, Actional, and Affectional Percept”, *American Catholic Philosophical Quarterly* 88 (2014) 397-437.

2. Cf. C. Fabro, *Perception and Thought*, Segni (Roma), Edivi, 2008 (1st Edition, Milano, Vita e Pensiero, 1941). Castillion Translation: *Percepción y pensamiento*, Pamplona, Eunsa, 1978.

3. On the cogitative in Fabro, cf. J. J. Sanguineti “Hermeneutics of perceptive learning”, in *Euntes Docete* 50/1-2 (1997) 195-212 and G. de Anna, “Cornelio Fabro between Thomism and cognitive psychology: a neo-Aristotelian solution to the gnoseological problem”, in D. Castellano et al. (ed.), *Per Cornelio Fabro* 1999, pp. 67-89.

4. Fabro points out in this regard (*Perception and Thought*, p. 238): “The speculative value that Sto. Tomás attributes to the cogitativa he does not rely on the abstract doctrine that it is a specific faculty […]. If it is placed as a faculty to oneself, it is not out of laziness [...] but for the reason that once the specificity of a function is recognized, it is necessary to make it correspond to a proportionate proximate principle.”

5. Cf. A. Macintryre, *Dependent Rational Animals*, Chicago and La Salle (Illinois), Open Court, 1999, pp. 12-41, where this author attributes beliefs, thoughts and reasons for acting to higher animals. Dolphins, for example, will demonstrate a capacity for perception, perceptual attention, recognition, desires, emotions, judgments, intentions, orienting their actions towards chosen ends that specify motives for doing one thing or another. "If we are justified in making these attributions, presumably we are also justified in attributing thoughts and beliefs to dolphins" (p. 27). The essential difference with man would be that he is able to reflect on these capacities. The author, even though he is a Thomist and in no way materialistic, cannot avoid this language that he uses to mention the high capacities of animals because he lacks, in my opinion, an adequate theory of perception.

6. Fabro maintains in *Freedom and Thought in Man. 1962/63. Pupils’ Notes*, p. 53 (unpublished document existing in the background of modern wisdom is born from this mistake: that sensation is the fundamental primary knowledge.” The pages of these lessons partially expose, in an agile and lively way, the theses contained in Perception and Thought.

7. Cf. C. Fabro, *Perception and Thought*, p. 28.

8. C. Fabro, *Perception and Thought*, p. 32.

9. J. L. Austin this theory in his writing *Sense and Sensibility* (*Sense and Perception*, Madrid, Tecnos, 1981). H. Putnam welcomed this criticism with enthusiasm in his work *The Treefold Cord: Mind, Body, and World,* New York Columbia University Press, 1999 (*The Triple-Corded Braid: The Mind, The Body and The World*, Madrid, Siglo XXI de España Editores, 2001).

10. C. Fabro, *Perception and Thought*, p. 233

11. C. Fabro, *Perception and Thought*, p. 234. Fabro then points out that Suárez's objection (shown with a quote on p. 235) that it is not understood how a sensitive power can reason about faculties has had an impact on many authors (*Perception and Thought*, p. 376 , note 376): “that the doctrine of the cogitative is difficult, I am willing to admit it, because I have verified it: nevertheless I have the intimate conviction that any gnoseology, and not only the Thomistic one, disperses and falls if it is not you accept". I don't think I mean it in the strict sense of necessarily having to assume this faculty as such, but I do mean its function, that is, to admit the possibility of an intimate interpenetration between thought and sensible perception, avoiding their separation.

12. Thus, for example, to indicate that the animal captures the intentions of the estimate, Thomas Aquinas uses the verb *percipiunt* and not the verb "feel" (S. Th., I, q. 78, a. 4). (S. Th., I, q. 78, a. 4), and also speaks of "perceiving" to refer to the perception

that the senses have of their own acts (S. Th., I, q. 78, a 4, first *praeterea* of objections). In S. Th., I, q. 76, a. 1, we read that man "perceives" that he understands and feels, and in q. 75, a. 2 is expressed by saying that the tongue "perceives" the sweet or the bitter.

13. Cf. S. Th., I, q. 78, a. 3.

14. Cf. C. Fabro, *Perception and Thought*, pp. 418-430.

15. Cf., On this point, J. J. Sanguineti, Madrid, Palabra, 2014, pp. 327-335.

16. Cf. D. Marr, Vision. *A Computational Investigation into the Human Representation and Processing of Visual Information*, New York, Freeman, 1982.

17. Cf. J. J. Sanguineti,, pp. 283-288 and 300-320. 18 Cf. C. Fabro, *Perception and Thought*, pp. 419-423.

18. Cf. C. Fabro, *Perception and Thought*, pp. 419-423.

19. Cf. C. Fabro, *Perception and Thought*, p. 420, note 12.

20. Cf. C. Fabro, *Perception and Thought*, pp. 295-335. Cf., on this theme, M. Echavarria, “The Intellectual Knowledge of the Material Individual According to Thomas Aquinas”, Espíritu LXIII/148 (2014) 347-379.

21. Cf. St. Thomas Aquinas, S. Th., I, q. 78, a. 4.

22. Cf. St. Thomas Aquinas, C. G., II, 60 and 73.

23. St. Thomas Aquinas is not very explicit about this type of meaning (it is usually limited to the case of the warning of a dangerous animal). Albert the Great is much more so, on points where Aquinate, anyway, agrees peacefully. Cf. Albert the Great, De Anima, ed. Cl. Stroick, Aschendorff, 1968, lib. 2, tract. 4, ch. 7, where he mentions the discernment that an animal makes of its mother or children, or of a custodian (“ovis noscit filium et alii et non alii porrigit ubera lactando et fugit lupum ut inimicum et canem sequitur ut custodem”).

24. Cf. C. Fabro, *Perception and Thought*, p. 220 (with various citations of St. Thomas).

25. Cf. C. Fabro, *Perception and Thought*, p. 220.

26. Cf. St. Thomas Aquinas, S. Th., I, q. 82, a. 3 and C. Fabro, Perception and Thought, pp. 222-223.

27. Cf. St. Thomas Aquinas, S. Th., I, q. 20, a. 1, ad 1. Cf., on this theme, J. J. Sanguineti, Philosophy of the Mind, Madrid, Palabra, 2007, pp. 196-204.

28. Cf. M. Iacoboni, The Mirror Neurons, Madrid, Katz, 2009.

29. Cf. on this theme J. A. lombo, J. M. Giménez Amaya, The Unity of the Person, Pamplona, Eunsa, 2013, pp. 75-79.

30. Cf. J. J. Sanguineti, Philosophy of the Mind, pp. 267-304.

31. Cf. Albert the Great, De Anima, lib. 3, tract. 1, cap. 2.

32. Cf. Albert the Great, De Anima, lib. 3, tract. 1, cap. 3.

33. Cf. Albert the Great, De Anima, lib. 2, tract. 4, cap. 7.

34. Cf. M. Merleau-Ponty, *Phenemenology of Perception*, Paris, Gallimard, 1985 (original from 1945; in Spanish: *Fenomenonología de la percepción*. C. Fabro, *The Phenemenology of Perception*, Milano, Vita e Pensiero, 1941 (cf. the current edition in Editrice del Verbo Incarnato, Segni [Rome], 2006). This work appeared almost at the same time as *Perception and Thought*, Milano, Vita e Pensiero, 1941, as a first part, more scientific, that prepares the theses that are developed in this second work.

35. Cf. M. Merleau-Ponty, *Phenemenology of Perception*, pp. 9-19.

36. M. Merleau-Ponty, *Phenemenology of Perception*, p. 40. My translation of these texts.

37. M. Merleau-Ponty, *Phenemenology of Perception*, p. 41. My translation of these texts. Footnote 3 refers to Helmholtz's perceptual theory of "implicit inference."

38. M. Merleau-Ponty, *Phenomenology of Perception*, p. 42. The criticism refers specifically to the so-called "constructivist theory" of perception, which reduces it to a hypothetical interpretation proposed at the level of intellectual judgment.

39. M. Merleau-Ponty, *Phenomenology of Perception*, p. 50. Cf. The conference also expresses this same fundamental thesis, not understood by many members of this society, as can be seen when reading the debate: M. Merleau-Ponty, Le primat de la perception, Vendôme, Verdier,1996.

40. Cf. J. J. Gibson, *The Ecological Approach to Visual Perception*, Boston, Houghton Mifflin, 1979.

41. Cf. A. Paternoster, *Philosophy and the Senses*, Roma, Carocci, 2007. This author supports representative negation at the level of sub-personal processes, avoiding reducing perception to conceptualization. We directly perceive real objects, not representations, but perceptions are made possible by sub-personal informational structures. Such structures are not conscious objects of a representation, but are like a "scaffolding" that cannot be seen, that is, they are means through which we see reality. This position recalls Thomas Aquinas's distinction between the intentional species as the medium quo (through which) is known and the extra-mental reality as the quod object of knowledge ("what" is known): cf. S. Th., I, q. 85, a. 2.

42. C. Fabro, *Perception and Thought*, p. 33.

43. Cf. C. Fabro, *Perception and Thought*, pp. 174 y ss., where the notion of "perceptual fusion" is used.

44. Cf. C. Fabro, *Perception and Thought*, p. 331.

45. St. Thomas Aquinas, S. Th., I, q. 78, a. 4, ad 5 (my translation). In *Perception and Thought*, p. 299, note 45, Fabro cites the significance of Aquinas' affirmation: [in man] the sensitive part, joining the intellect, becomes more powerful (virtuosior): S. Th., I, q. 85, a. 1, ad 4.

46. Cf. C. Fabro, *Perception and Thought*, p. 230.

47. Cf. C. Fabro, *Perception and Thought*, p. 230.

48. Cf. C. Fabro, *Perception and Thought*, pp. 224-231.

49. C. Fabro, *Perception and Thought*, p. 227.

Center for the Study of Digital Life

Dianoetikon 1 (2020): 205-215

FACULTY PSYCHOLOGY: BIBLIOGRAPHY (SELECTED AND ANNOTATED)

ORIGINS: FROM ARISTOTLE TO AVERROES

In many ways, Aristotle "invented" psychology, or the study of the "psuche" (more commonly known as "psyche"), roughly the Greek term for what we call the "soul." No other author has been suggested as an alternate and, despite the "disappearance" of his work for centuries after his death in 322BC, he became for philosophers and physicians alike the primary source of this understanding until the modern era. Many expanded on his work, amending it with their own theories and commenting on his surviving treatises.

Aristotle (2001) [c. 350 BC]. *On the Soul & On Memory and Recollection*. Translated by Joe Sachs. Green Lion Press. St. John's College.

Aristotle marshalls all the previous arguments that had been put forward about the nature of "soul" (psyche), and lays the founding principles of psychology. The translation by Joe Sachs comes directly from the Greek into English, bypassing the Latin and going out of its way to "coin" new phrases for terms invented by Aristotle, such as "being-at-work-staying-itself" for the Greek neologism "entelechy." When the University of Paris finally brought Aristotle into its curriculum, "De Anima" became required reading.

The Book of Wisdom. (100 BC).

Written in Greek by Alexandrian Jews in the 1st century BC, the Aristotelian "psyche", with all of its embodied "energy" (a word invented by Aristotle) is a persistent theme throughout (Psyche: 1:4, 11; 2:22; 3:1, 13; 4:11, 4; 7:27; 8:19; 9:3, 15; 10:7; 11:26; 12:6; 14:5, 11, 26; 15:8, 11; 16:9, 14; 17:1, 8, 15; Energy: 7:17, 26; 13:4; 18:22). The word "apsuchoi", or soul-less, appears nowhere else in scripture. (13:17; 14:29). It is used here in reference to idols, which have no real life of their own. Quotations from the Book of Wisdom appear constantly throughout the work of St. Thomas Aquinas.

Abu-Ali al-Husayn ibn-Abdallah Ibn-Sina (1959) [1027 AD]. *Avicenna's de anima (Arabic text), being the psychological part of Kitab al-Shifa' (Book of Healing).* London Oxford University Press. No full translation available. For parts in English translation see The Salvation.

Avicenna's *Book of Healing* was the fruit of centuries of effort culminating from the Baghdad "House of Wisdom". What remained of Aristotle's Greek was received and translated into Syriac, then Arabic. Avicenna's work on Aristotle's "On the Soul" appears in this much larger medical compendium, wherein teachings on interior sensory powers are commented upon and further developed.

Averroes (Ibn Rushd) of Cordoba, (2009) [c. 1160 AD] *Long Commentary on the De Anima of Aristotle*. Translated with Introduction and Notes by Richard C. Taylor; with Thérèse-Anne Druart, Subeditor. New Haven: Yale University Press.

Averroes wrote commentaries on every work of Aristotle that he had access to in 12th century Spain. The so-called "long commentary" is a line-by-line analysis of Aristotle's original books On the Soul. In it is developed a controversial theory of a unitary & disembodied human intellect which was the topic of much dispute in the 13th century European Universities upon the works reception into Latin.

SUMMAE: FROM ALBERT TO POINSOT

During the 13th-century, as Aristotle's work made it from Greek and Arabic into competent Latin translations, understanding of the psyche/soul and its faculties became widespread for the first time through the establishment of the Medieval University system, particularly in Paris. This understanding remained largely unchallenged until the 19th-century, surviving, albeit buffeted to be sure by the invention of the printing press &c.

St. Albertus Magnus O.P. (1968) [1254-1257]. *De anima*, ed. Clemens Stroick, vol. 7.1 of Opera omnia, ed. B. Geyer. Münster i. Westfalen: Aschendorff, 1968.

From the then-freshly-founded Dominican Order of Preachers, Saint Albert the Great was Saint Thomas Aquinas's teacher. This is his own commentary on Aristotle's book On the Soul, and in it, he outlines his own doctrine of the interior senses: in which he distinguishes five interior sensory powers. "Therefore let us take up again the two principles through which these powers are distinguished, by saying that the active, which is formal, is not perfected in the same way as the passive, which is recipient and retentive. Therefore, since there is a certain power which retains and receives the forms that were sensed before, it will be passive, perfected by the cold and dry in the complexion of the organ whose act it is."

Aquinas O.P., St. Thomas (1267). *Quaestiones Disputatae De anima*. University of Paris.

Written during his stay teaching at Rome's *studium* of Santa Sabina, St. Thomas draws out the controversies surrounding conflicting interpretations of Aristotle's work On the Soul.

Aquinas O.P., St. Thomas (1268). *Sentencia libri De anima*. University of Paris.

Written during his stay teaching at Rome's *studium* of Santa Sabina, *On the Soul* is the first of about a dozen of St. Thomas Aquinas's line by line commentaries of Aristotle works.

Aquinas O.P., St. Thomas. (1270). *De unitate intellectus contra averroistas*. University of Paris.

St. Thomas was called to the University of Paris to deal with "Averroist" teachings of the intellect which were gaining popularity. This is a polemic work which weighs the arguments of the

"Averroists", who claimed that men shared one intellect, against the text of Aristotle and other Peripatetics.

Aquinas O.P., St. Thomas. (1270). *Summa Theologiae*. Part I. Question 78. University of Paris.

Written during his second regency as magister at the University of Paris, St. Thomas asks the Question: Whether the interior senses are suitably distinguished? He settles on there being four interior sensory powers: the common sense, imaginative power, cogitative power, and memorative power — each with their own bodily organ (cells located in different parts of the brain) and object. In the "hylomorphic" sense of matter + form, it is the interior sensory powers which are considered "material," whereas powers such as the intellect are thought of as "immaterial."

Suarez S. J., Francisco. (1866) [1597]. Disputationes metaphysicae in *Opera omnia*. ed. D. M. Andre. vols XXV-XXVI. Paris: Vives.

Suarez S. J., Francisco. (1856) [1621]. De anima in *Opera omnia*. ed. D. M. Andre. vol III. Paris: Vives.

Jesuit commentator of Aquinas, Francisco Suarez's printed books defined the philosophy of "post-medieval" Europe. His *Disputationes metaphysicae* supplanted Aristotle and Aquinas, his volumes found their way onto "the bookshelf of every intellectual in Europe" (Deely, Four Ages p. 500). Lacking Aristotle's metaphysical basis, Suarez refuted any "real" or "formal" distinction among the interior senses. He concluded that "one interior sensory power" is adequate, no matter its many names. This later becomes crucial, since later Jesuits often resisted the use of Aquinas, preferring "their" Suarez as the new-and-improved version.

Poinsot, John. (1985) [1632]. *Tractatus de signis: The semiotic of John Poinsot*, John Deely (ed.) with Ralph A. Powell. Berkeley: University of California Press.

Poinsot (who took the name John of St. Thomas upon joining the Dominicans in 1612 or 1613) studied early under the Conimbricenses, then at Louvain, before being named to two successive chairs at the university in Alcalá. The *Tractatus de Signis* is John Deely's interpretive re-arrangement of various questions and articles from the *Ars Logica* of the *Cursus Philosophicus*, published in 1632. Here, Poinsot brings the "protosemiotic" development to its culmination, with his identification of relation and the role of signs in human cognition. Within that context, important clarifications are made concerning the operations of the interior senses (to which as a whole Poinsot gives the name *phantasiari*), most especially their use of signs and relations simultaneous with their distinction from intellect. Among this he includes the insight that we may be moved by perceived objects which are not themselves real things, existing independently of their role in perception. He remains faithful to the distinctions drawn by Aquinas as to the various interior senses.

Wolfson, Harry Austryn (1935). "The Internal Senses in Latin, Arabic, and Hebrew" in *The Harvard Theological Review* Vol. 28, No. 2 (Apr., 1935), pp. 69-133.

A useful grammatical resource, Harry Austryn Wolfson completes a gargantuan task in making a glossary of the actual words used to describe the psychology of the interior senses in Hebrew, Arabic, and Latin.

FALSE START: FROM POPE LEO XIII TO GUARDINI

As what McLuhan called the "Gutenberg Galaxy" declined and electric-media technologies took over "structuring" society in the mid-19th century, the Aristotelean/Scholastic understanding of the psyche/soul came under increasing pressure and, for the first time since antiquity, was deliberately replaced by a new "experimental" approach. Catholics with a "classical" understanding withdrew from the discussion and shifted attention to topics like the "psychology of mysticism." The birth of modern psychology often meant a complete "forgetting" of Faculty Psychology -- aided by the inability of those who understood it to keep that memory alive -- which had served in the West for more than two millennia. The modern approach was then deployed to generate such modern innovations as "psychological warfare" and its everyday corollary, mass-market advertising.

Pope Leo XIII (1879). *Aeterni patris*.

Responding to the rise of experimental psychologies in Italy (Rosmini, Tongiorgi), Pope Leo XIII, with the help of Cardinal Zigliara and his brother Giuseppi Pecci S.J., calls for the rebuilding of the forgotten philosophical psychology of St. Thomas Aquinas. This incredibly important & influential encyclical letter saw to the publishing of the Leonine Editions of St. Thomas Aquinas's original works in Latin, and the building of schools & curricula across Europe (Italy, Belgium, England, Germany) based on Aquinas.

Maher S.J., Fr. Michael (1890). *Psychology*. Longmans, Green and Co. London: Stonyhurst College.

The only English-language scholastic manual of its times, published out of the Jesuit college Stonyhurst. Multiple editions & revisions would appear as late as the 1940s. In it, Maher traces modern psychologies in comparison with Catholic doctrine. When it comes to the crucial question of the interior senses, Maher sides with the Jesuit commentator of St. Thomas, Francisco Suarez, and writes "accepting Suarez's doctrine that there is no real nor formal distinction among the interior senses." Irish poet James Joyce would use this as the scholastic basis for his own works. The work was also reviewed & praised by American psychologist Charles Sanders Peirce.

Zigliara O.P., Card. Tommaso Maria. (1891). *Summa Philosophica, II Cosmologia, Psychologia et Theologia Naturalis.* Paris: Librairie Delhomme et Briguet. Ed. Gabriel Beauchesne.

The second book of Tomasso Zigliara's scholastic manuals, written in Latin. Zigliara, who had helped with the promulgation of Pope Leo XIII's *Aeterni patris* reiterates St. Thomas's teaching on the interior senses. He dismisses Rosmini & Tongiorgi's "sentimento fondamentale" in favor of St. Thomas.

Pesch S.J., Tilman (1896-1897). *Institutiones psychologicae secundum principia S. Thomae Aquinatis : usum scholasticum* / Freiburg Br. : Herder.

An extensive 2-volume “manual” largely taken from Aquinas. Alas, written in Latin and rarely cited in other works from the time. Apparently little noticed in the 20th-century.

Mercier, Cardinal Désiré Félicien François Joseph (1908) *Cours De Philosophie Vol III: Psychologie.* Louvain: Bibliothèque de l'Institut Superieur de Philosophie.

Cardinal Mercier of Belgium was put in charge by the Jesuits at Louvain to undertake the Thomistic revival at a new academy called The Superior Institute of Philosophy. This is a French language scholastic manual on the topic of Psychology. When the topic of the subconscious interior senses is brought up, St. Thomas’s crucial “cogitative power” is conflated with “instinct”, and much of the action is moved to a new topic invented by Mercier himself called “Criteriology.”

Dubray S.M., Rev. Charles (1909). Faculties of the Soul. In *The Catholic Encyclopedia.* New York: Robert Appleton Company.

The failure of Pope Leo XIII’s effort to revive the philosophy of St. Thomas within the Church is preserved in this entry: “any attempt, however, to define with greater precision the meaning of faculties [of the soul], is sure to call forth vigorous protest.” As it was not seen as having to do with dogma, it was left up in the air. “That the faculty theory has no essential connection with Catholic dogma is sufficiently evidenced by the fact that it has found, and still finds, opponents as well as advocates among Catholic theologians and philosophers.” The question of distinction is brought up without any mention of form. “This shows that when a real distinction is admitted between the soul and its faculties, or between the faculties themselves, the meaning is not that of a distinction between substances or agents. In Scholastic terminology, distinction does not always mean separation nor even the possibility of separation. And the distinction between a substance and its qualities, attributes or modes, was called a real distinction.”

Pope Pius X (1910). *Oath Against Modernism (Sacrorum antistitum).*

Moral & dogmatic concerns over “modernism” further ensured that psychology would be pushed off the plate of Catholic education.

Guardini, Fr. Romano. (1914). *Gegensatz und Gegensätze : Entwurf eines Systems der Typenlehre.* Freiburg i. Br. : Caritas-Dr.

German theologian Fr. Romano Guardini developed his own metaphysical system stemming from questions of the souls operations, completely apart from Aristotle and St. Thomas Aquinas. Fr. Guardini would later serve as a well of intellectual heritage for future Popes Benedict XVI and Francis.

Marechal S.J., Fr. Joseph. (2004/1927). *Psychology of the Mystics*. Mineola, NY: Dover Publications.

Having withdrawn from engagement with modern psychology, Catholic scholars increasingly focussed on the psychology of “religious experiences.” For the first time in Church history, “mystics” (many of whom had earlier been investigated by the Inquisition) were elevated, with some of them becoming “Doctors of the Church.” Leading exponents of Neo-Thomism, such as Jacques Maritain, underpinned their religiosity with expectations of mystical transport. Any

hope for a return to Faculty Psychology was pushed even further away.

REDISCOVERY: FROM PEGHAIRE TO KEMPLE

The problems generated by modern psychology, precipitated by the loss of Faculty Psychology, including the explosion of contrary theories and failed therapeutic techniques, have reached almost unbearable levels, prompting an effort to retrieve the "lost" understanding of the psyche/soul. The "disenchantment of the world," as described by Max Weber, in which understanding of the soul was largely lost, along with widespread alienation/disaffection across society, has only compounded these problems. It is now beginning to be recognized that the rich development of a "faculty psychology" focussed on the "inner senses" has become an urgent and even "existential" requirement under digital conditions. Once again, Aristotle and Aquinas are being studied for their psychological insights and psychic healing sensibilities.

Peghaire C.S.Sp., Fr. Julien (1942). A Forgotten Sense, the Cogitative According to St. Thomas Aquinas. In *The Modern Schoolman* 20 (4):210-229. St Louis University.

At the same time, Fr. Julien Peghaire of the Holy Ghost Fathers picked up on the topic of another forgotten interior sense, the cogitative power. His extended two-part article would lead to the publication of a monograph on the topic by George Klubertanz S.J., called "The Discursive Power".

Muller-Thym, Bernard J. (1940). "The Common Sense, Perfection of the Order of Pure Sensibility," in *The Thomist* 2: 315-43. St. Louis University.

Muller-Thym, the "star-pupil" of "orthodox Thomist" Etienne Gilson, and a key advisor to Marshall McLuhan during his years at St. Louis University, wrote this extended article on St. Thomas's doctrine of the *sensus communis* as the term of the exterior senses. As the "Perfection of the Senses" (which means "completion"), it appears that this was the end-of-the-road for McLuhan, who structured his own approach to media around the "balance" of the exterior senses, up to and including the "Common Sense," without exploring the more important "inner senses."

McLuhan, Herbert Marshall (1942). *The Classical Trivium: The Place of Thomas Nashe in the Learning of His Times.* Dissertation. University of Cambridge.

Written at St. Louis University with the help of colleague & friend Bernard J. Muller-Thym, this dissertation on the history of Western learning was mailed by boat to Cambridge during World War II. In it, McLuhan paints the historical controversies in the world of letters as being between the primacy of "grammar" and "dialectics", on the battlefield of rhetoric. With only a truncated understanding of the "sensory faculties," McLuhan was unable to develop an adequate psychology to accompany his analysis of the Trivium.

McLuhan, Herbert Marshall (1951). “Joyce, Aquinas, and the Poetic Process” In *Renascence* 4 (1):3-11. Marquette University.

In this paper, McLuhan attempts to detect and trace the sensory doctrines of St. Thomas Aquinas in the poetics of James Joyce. This paper would serve as the foundation for Italian author Umberto Eco’s dissertation on the same topic. The absence of the cogitative power in this work can be blamed on it’s absence from Maher’s English manual, a resource Joyce used frequently.

Harvey, E. Ruth. (1975). *The Inward Wits: Psychological Theory in the Middle Ages and the Renaissance.* (Warburg Institute Surveys, Vol. 6.). London: The Warburg Institute.

Ruth Harvey, a once-student of Frances Yates, wrote this monograph for The Warburg Institute. In it, she draws out the forgotten history of the interior senses: or as they had become known in Elizabethan England, “the inward wits.” She traces their use through English poetry (Stephen Hawes, Shakespeare), and outlines their historical roots from Arabic & Latin commentators of Aristotle.

Caruthers, Mary. (1990). *The Book of Memory: A Study of Memory in Medieval Culture.* Cambridge: Cambridge University Press.

Of the four “inner senses” described by Aquinas, perhaps the most neglected is memory. In an environment where “creativity” and “innovation” is prized, memory often appears to be forgotten. In fact, without a robust understanding of the role played by memory in perception, the “ecology of the inner senses” becomes radically imbalanced and the grounding of behavior and attitudes unhinged.

Gasson, J. A. and Arnold, Magda B. (1963). “The Internal Senses: Functions or Powers?, Part 1 & Part 2” in *The Thomist.* 26 1: 1-34. Washington DC: The Catholic University of America Press.

According to the historian of psychology, Robert Kugelmann (University of Dallas), one of the few modern psychologists who even attempted to develop a “Faculty Psychology,” following the Thomist orientation, was Magna Arnold. She is particularly known for her extensive treatment the faculties of “Emotion” and “Memory.” Today she is mostly remembered as pioneering “feminist psychologist” and a recent PhD dissertation relates how her knowledge of Thomas likely came from a Jesuit priest, J. A. Gasson S. J., with whom she developed an “intimate” relationship.

Arnold, Magda B. (1984). *Memory and the Brain*. Hillsdale, New Jersey: Lawrence Erbaum Associates.

Magna Arnold’s last work focuses on the crucial faculty of memory. This is the “inner sense” that anchors the “phantasms” to which the Passive Intellect must return in order to generate perceptions. She divides the work into “Psychological Aspects” and “Neurophysiological Aspects,” outdating the medieval notions of the relationships with brain anatomy.

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

An historical account of the relationship between psychology and the Catholic Church. It particularly deals with the rise of experimental psychologies (of Wundt, Fechner, Freud, Jung, and others) and their clash with an anti-modern Church that gradually subsumed much of the premises. Overwhelmingly, when Catholics adopt various psychological approaches, they separate the "science" involved from their own "faith." In the process, the core understanding of the soul and its faculties -- as reflected in Thomas &al -- is lost.

Deely, John (2001). *Four Ages of Understanding*. Toronto: University of Toronto Press.

Deely, John (1971). "Animal Intelligence and Concept-Formation" in *The Thomist*. 35. (1):43-93. Houston, Texas: University of St. Thomas.

Deely's *Four Ages* is sweeping purview of the history of western philosophy, from ancient to present. With his focus on signs & relations, much attention is given by Deely to human perception. In his article in *The Thomist*, Deely draws out St. Thomas Aquinas's statements on embodied perception, in human beings but particularly in non-human animals. He dismisses Peter Geach's work on Aquinas as "caricature" or "parody", and further rejects the suggestion that "instinct" could be an adequate explanation for animal concept-formation, seeking instead the perceptual roots which precede abstraction of any kind.

Ripperger F.S.S.P., Fr. Chad (2001). *Introduction to the Science of Mental Health.* Sensus Traditionis Press.

Father Ripperger's "magnum opus," in three Parts, begins with perhaps the only modern attempt to compile all of Thomas's commentary on the psychological faculties. His Chapters 3 & 4 (Part 1) are titled "The Cognitive Faculties" (Sections I & II) and run for 52 pages of often dense citation. The section titled "The Four Interior Senses or the Passive Intellect" begins to draw out aspects of the crucial relationship between these faculties and the more commonly referenced "Agent" and "Possible" Intellects.

Barker, Mark (2007). *The Cogitative Power: Objects and Terminology*. Dissertation. Houston, Texas: University of St. Thomas.

Barker has devoted his academic career to the crucial "Cogitative Power," which is the faculty that "perfects" the interior senses. His privately circulated PhD is now in preparation for elaborated publication.

Tellkamp, Jörg Alejandro; Lopez-Farjeat, Luis Xavier (2013). *Philosophical Psychology in Arabic Thought and the Latin Aristotelianism of the 13th Century.* Paris: Library Philosophique J. Vrin

A collection of papers from various scholars & researches on the finer points of the reception of Aristotelian psychology in medieval Europe.

Pope Francis (2015). *Laudato si'.*

Pope Francis begins the third chapter "The Human Roots of the Ecological Crisis" with a central problem concerning human understanding: "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." In this chapter, Pope Francis cites Fr. Romano Guardini's "The End of the Modern World" six times.

Lisska, Anthony J. (2016). *Aquinas's Theory of Perception: An Analytic Reconstruction*. New York: Oxford University Press.

Lisska's monograph reconstructs St. Thomas's writings on the interior sensory faculties from an "analytic approach", and sets their real & formal basis against that of "representationalists" such as Suarez, and in turn - Hume, Descartes &al. He claims a "striking structural similarity" between St. Thomas's interior senses and the "direct perception" proposed by J. J. Gibson and Thomas Reid, while the heart of their striking differences lays outside the scope of the study.

Kemple, Brian (2017). *Ens Primum Cognitum in Thomas Aquinas and the Tradition.* Brill | Rodopi. Houston: University of St. Thomas.

Kemple completed his PhD under the supervision of John Deely, the highly respected founder of the Semiotic Association of America and medieval (or, as he preferred to call it, "Latin Age") scholar. Kemple now runs Continuum Insights, which is conducting an online seminar in "Thomist Psychology" for its clients.

SUBCONSCIOUS RETRIEVED: FROM JAYNES TO GIGERENZER

Stepping away from the embarrassingly unsuccessful effort to solve the "hard problem of consciousness," many have begun to look elsewhere. Neuroscience richly illustrates that naive notions of "free will" cannot be sustained and "philosophy of mind" has begun to examine the inner workings beneath the veneer of awareness. Efforts to "model" humans on computers, with "direct perception" and control-oriented "programs," appear to have taken AI research into a fruitless brute-force cul-de-sac. It is becoming increasingly clear that the brain is not "cybernetic" and the "mind" is not digital. A complete rethinking of the human psyche/soul is now required, retrieving our earliest sources, starting with perception and the exploration of subconscious pattern-recognition.

Jaynes, Julian (1976). *The Origins of Consciousness in the Breakdown of the Bicameral Mind*. Boston: Houghton Mifflin Company.

Jaynes, a brilliant renegade, posited that "consciousness" was a recent phenomenon, only developing in the first millenium BC, and not the original condition of human mentality. This was

a bombshell in the world of psychological investigation and beyond, bringing relentless criticism and forcing Jaynes to defend his claims. As a result, the promised Book IV never appeared, leaving Jaynes with the sense of being trapped in "academic prison." While suggesting various mechanisms in "Origins," at the end of his life he shifted towards literacy as the driver of conscious awareness, crediting Marshall McLuhan for the key insights.

Donald, Merlin (1991). *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition*. Cambridge, MA: Harvard University Press.

Donald, an evolutionary neuroscientist, picked up where Jaynes had left off, building on both "Origins" as well as his early education in "media literacy," itself a Canadian reaction to the work of Marshall McLuhan. Unlike Jaynes, however, Donald career was successful, taking him to the chairmanship of the Psychology Dept. at Case Western. While Jaynes had concentrated exclusively on the "recent" transition in mentality, Donald extended this back to the origins of Homo Sapiens, positing earlier mental frameworks, including "episodic," "mimetic" and "mythic" (roughly what Jaynes had meant by "bicameral.") His term for "conscious" mentality was "theoretic" and he grounded the analysis in the role of "external symbolic storage" (explicitly introducing technological environments into the discussion.)

McGilchrist, Ian (2009). *The Master and His Emissary: The Divided Brain and the Making of the Western World*. New Haven: Yale University Press.

McGilchrist, a psychiatrist and neuroimaging researcher, claims to have taken 20+ years to complete this book, winning him widespread acclaim. Brain anatomy is hemispherically left/right, which has stimulated endless speculation about potential functional specialization. He demonstrates that most naive notions, typically assigning "logic" to the "left-brain" and "poetry" to the "right-brain," is incorrect. In fact, localization is far more complicated and both hemispheres carry out most brain functions, although they appear to generate different "takes" on our experiences. Nonetheless, he does conclude that a leftward "dominance," aligned with characteristic communications technologies, could help to explain some distinctive features of Western civilization.

Rock, Irwin (1983). *The Logic of Perception*. Cambridge, MA: The MIT Press.

Expanding on the work of Gestalt psychology and its interest in perceptual theory, Rock conducted his own extensive experimentation and concluded that there must be a subconscious "intelligence" involved. This contradicts the widely held views proposed by J. J. Gibson (as well as Rock's earlier views), often described as the "direct" or "stimulus" theory of perception. While apparently unaware of the earlier notions of "faculties," Rock posits the operation of an "unconscious inference" which should be considered as Faculty Psychology is rediscovered.

Gregory, Richard L. (2009). *Seeing Through Illusion*. Oxford: Oxford University Press.

Gregory was a psychologist of perception, with a particular interest in optical illusions, also a mainstay of the earlier Gestalt approach. As he and many others have demonstrated, any notion of external sensation being "directly" perceived is contradicted by our inability to simply resolve these illusions. The "inner senses" of Faculty Psychology present an opportunity to better understand these processes.

Robinson, Daniel N. (2008). *Consciousness and Mental Life*. New York: Columbia University Press.

Robinson provides a rare historic overview of the predecessors to modern "cognitive science," asking the question what this presumed "revolution" actually overturned. He correctly wonders, "Is the revolution one of discovery or retreat?" In the process, beginning with Aristotle, he suggests that a "developed or revived respect for a much maligned 'folk psychology'" is now needed, in the face of a triumphant (and, thus, surely deluded) "scientism."

Wegner, Daniel M. (2002). *The Illusion of Conscious Will*. Cambridge, MA: The MIT Press.

As certain as philosophers like to think their own thoughts might be, the thorny topic of "free will" has fallen on hard times. As Wegner puts it, "Do we consciously cause what we do, or do our actions happen to us?" Illusions apparently go even deeper than simple perceptions. Fully expanded, we need to understand the wider environmental consequences of our behaviors and attitudes. Rather than being the open-ended chance to "construct the world" according to our whims, it seems far more plausible that the world "constructs" us instead.

Norretranders, Tor (1998, Danish original, 1991). *The User Illusion: Cutting Consciousness Down to Size*. New York: The Penquin Press.

Norretranders begins by noting that "Consciousness plays a far smaller role in human life than Western culture has tended to believe," expanding on the comprehensive doubts raised by neuroscience about how we understand ourselves. In part building on the work of Jaynes &al, he goes further in his scepticism about previous certainties to state "it has become increasingly clear since 1930 that the basis of objectivity is itself subjective."

Gigerenzer, Gerd (2007). *Gut Feelings: The Intelligence of the Unconscious*. New York: The Penquin Press.

Gigerenzer used to direct the Center for Adaptive Behavior at the Max Planck Institute for Human Development. This popularization of the work at his Center is, in some ways, a rejoinder to Malcolm Gladwell who tackled the same topic in his 2005 *Blink: The Power of Thinking Without Thinking*, based in part on Gigerenzer's and his group's research. His approach is to construct "rules of thumb" which might be thought of as "learned instincts," as the actual subconscious substrata of day-to-day decision making.

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

Judea Pearl, a senior AI researcher, illustrates the fundamental problems faced by those attempting to "model" humans as a result of their inability to deal with causality. During the 20th-century, the already tattered four-fold Aristotelian classification was discarded in favor of statistical approaches, reflecting the impact of an electric media-environment. Causality is intimately related to the "inner senses," which is where they are initially perceived. Without a Faculty Psychology, causality slips away and, without that understanding, the opportunity for significant scientific insight is jeopardized.