

ANNALES THEOLOGICI

RIVISTA DELLA FACOLTÀ DI TEOLOGIA
DELLA PONTIFICIA UNIVERSITÀ DELLA SANTA CROCE

ANNO 2024 · VOLUME 38 · FASCICOLO II

THEOLOGY, THE SCIENCES AND THE HUMAN QUEST FOR INTERDISCIPLINARITY
ESSAYS IN HONOR OF GIUSEPPE TANZELLA-NITTI

PAUL ALLEN

A Fundamental Theology for Doctrine: Science and History

JAVIER SÁNCHEZ-CAÑIZARES

Science-Mediated Natural Theology: Unraveling the Burden of Proof

ALBERTO STRUMIA

Aquinas' Legacy in the Contemporary Dialogue Between Science and Faith

GIUSEPPINA DE SIMONE

*Returning to Religious Experience: The Contemporary Challenge in the Dialogue
Between Philosophy and Theology*

LLUIS OVIEDO

How the New Scientific Studies of Religion Impact on Fundamental Theology

PAUL O'CALLAGHAN

*The Perception of Logos ut ratio and Logos ut verbum in Creation.
A Reflection in the Context of the 1700th Anniversary of the Council of Nicaea*

CLAUDIO TAGLIAPIETRA

The Humanistic Dimensions of Scientific Research

GIULIO MASPERO

*Unity of Life, Unity of Knowledge: University and Scientific Knowledge
Enlightened by Josemaría Escrivá's Charism*

OSKARI JUURIKKALA

The Creative and Redemptive Word: Benedict XVI's Theology of the Book of Nature

GUY CONSOLMAGNO

Science and Faith from the Viewpoint of the Scientist

CHRISTOPHER T. BAGLOW

Beyond Conflict: Teaching Theology in the Light of Science

LUCIO FLORIO

*The Use of Experimental Sciences by Theology. Giuseppe Tanzella-Nitti's Contributions
in the Context of Fundamental Theology*

ANNALES THEOLOGICI

Direttore

VICENTE BOSCH

Comitato di redazione

MARCO VANZINI, ARTURO BELLOCQ,
FERNANDO LÓPEZ ARIAS, CATALINA VIAL DE AMESTI

Consiglio scientifico

GRAZIANO BORGONOVO, ENRICO DAL COVOLO, PIERPAOLO DONATI,
JOHANNES GROHE, ERMENEGILDO MANICARDI, PAUL O'CALLAGHAN,
ÁNGEL RODRÍGUEZ LUÑO, PIA DE SOLENNI

Segretaria di redazione

MARIA VELTRI

© 2025 – Edizioni Santa Croce s.r.l.
via Sabotino 2/a – 00195 roma
tel. (39) 06 45493637
info@edusc.it
www.edizionisantacroce.it

Rivista semestrale iscritta al Registro della Stampa
del Tribunale di Roma con decreto n. 91 del 22 maggio 2018

Direttore responsabile Marco Vanzini

ISSN 0394-8226

La Rivista è indicizzata in ATLA Religion Database® e tutti i contributi sono raccolti in ATLASerials® (ATLAS®). ATLA Religion Database e ATLASerials sono prodotti della American Theological Library Association, 300 S. Wacker Dr., Suite 2100, Chicago, IL 60606, E-mail: atla@atla.com, www: <http://www.atla.com>. Indici e abstract sono anche disponibili in Religious and Theological Abstracts (www.rtabstracts.org).

FACOLTÀ DI TEOLOGIA
PONTIFICIA UNIVERSITÀ
DELLA SANTA CROCE

ANNALES
THEOLOGICI

VOLUME 38
ANNO 2024
FASCICOLO II

EDUSC

THEOLOGY, THE SCIENCES AND THE HUMAN
QUEST FOR INTERDISCIPLINARITY
Essays in Honor of Giuseppe Tanzella-Nitti

SOMMARIO

CLAUDIO TAGLIAPIETRA, IVAN COLAGÈ, SALVATORE L. GUGLIELMINO, MARCO VANZINI <i>Introduction</i>	347
--	-----

STATUS QUAESTIONIS

PAUL ALLEN <i>A Fundamental Theology for Doctrine: Science and History</i>	359
---	-----

STUDI

JAVIER SÁNCHEZ-CAÑIZARES <i>Science-Mediated Natural Theology: Unraveling the Burden of Proof</i>	407
ALBERTO STRUMIA <i>Aquinas' Legacy in the Contemporary Dialogue Between Science and Faith</i>	439
GIUSEPPINA DE SIMONE <i>Returning to Religious Experience: The Contemporary Challenge in the Dialogue Between Philosophy and Theology</i>	475
LLUIS OVIEDO <i>How the New Scientific Studies of Religion Impacts on Fundamental Theology</i>	497
PAUL O'CALLAGHAN <i>The Perception of Logos ut ratio and Logos ut verbum in Creation. A Reflection in the Context of the 1700th Anniversary of the Council of Nicaea</i>	515

NOTE

CLAUDIO TAGLIAPIETRA <i>The Humanistic Dimensions of Scientific Research</i>	553
---	-----

GIULIO MASPERO	
<i>Unity of Life, Unity of Knowledge: University and Scientific Knowledge Enlightened by Josemaría Escrivá's Charism</i>	569
OSKARI JUURIKKALA	
<i>The Creative and Redemptive Word: Benedict XVI's Theology of the Book of Nature</i>	589
GUY CONSOLMAGNO	
<i>Science and Faith from the Viewpoint of the Scientist</i>	615
CHRISTOPHER T. BAGLOW	
<i>Beyond Conflict: Teaching Theology in the Light of Science</i>	627
LUCIO FLORIO	
<i>The Use of Experimental Sciences by Theology. Giuseppe Tanzella-Nitti's Contributions in the Context of Fundamental Theology</i>	647
<i>Giuseppe Tanzella-Nitti, Scientist and Theologian A Bibliography 1980-2024, Briefly Commented by the Guest Editors</i>	667
<i>Recensioni</i>	685
<i>Libri ricevuti</i>	707

THEOLOGY, THE SCIENCES AND THE HUMAN QUEST FOR INTERDISCIPLINARITY

ESSAYS IN HONOR OF GIUSEPPE TANZELLA-NITTI

BACKGROUND

The guest editors of this special issue are two theologians, a philosopher and an astrophysicist, and that is meaningful. These three broad fields of human knowledge and culture cut across the whole scholarly career of rev. prof. Giuseppe Tanzella-Nitti. Passionate about astronomy since his high-school years, the young Giuseppe moved to Bologna to study astrophysics, earning his degree in physics in 1977. During the ten years spent as an astronomer, first as a researcher at the Italian CNR's Radio-astronomy Institute in Bologna and then at the Astronomical Observatory of Turin, he began his philosophical and theological studies, culminating with his ordination to the priesthood in 1987 and, in 1991, with a PhD in Theology at the Pontifical University of the Holy Cross, Rome.

Besides being theologians, philosophers or astrophysicists—and good friends—the editors of this special issue are all collaborators of prof. Tanzella-Nitti—who we friendly call simply “don Giuseppe”. Two of us (Marco and Claudio) are in the field of Fundamental Theology of the Faculty of Theology at the Holy Cross University, which he coordinates as Full Professor; all of us have collaborated, or are collaborating, with him at the DISF Research Centre, which he founded twenty years ago and directs since then, tirelessly. We all know him by more ten years. Hence, when we realized a couple of years ago that his seventieth birthday was approaching, the idea of celebrating this occurrence academically popped up clearly and spontaneously. A journal special issue immediately appeared the best possible initiative, and choosing *Annales Theologici* to host it was straight—not just as one of us (Marco) is in the Journal's Editorial Board, but especially as don Giuseppe directed the Journal for eleven years, from 2004 to 2015.

The issue gathers twelve contributions—which we will briefly introduce below. The challenge was not in retrieving twelve contributors, rather in selecting them among the many people who interacted with don Giuseppe and would have had significant contribution to make to this project, connecting theology and sciences, and his specific fields of research. The people we eventually contacted all agreed enthusiastically to the project, leaving us editors very happy with the final outcome, but also with the regret of being unable to involve all the authors who—over more than 35 years—have collaborated scientifically with don Giuseppe.

The process started in June 2023 with the first drafting of the issue layout and list of invited authors. On November 3 of the same year, we reached out the selected contributors. By June 2024, one year after the first steps, we were already able to send the first contributions out for peer review, and by January 24, 2025 all the authors submitted the final versions of their papers after peer review.

THE PERSON: THE SCIENTIST, THE THEOLOGIAN, THE PRIEST AND THE “ENTREPRENEUR”

Giuseppe Tanzella-Nitti is a renowned theologian, and a scholar in “Science & Theology”, based in Rome, where he spent the last 35 years as a Professor of Fundamental Theology. At the beginning of his career as a researcher at the Italian National Research Council he also contributed to astronomy and astrophysics, for example, co-authoring the first catalogue of galaxies’ radial velocities: *A Catalogue of Radial Velocities of Galaxies*, Gordon and Breach, New York 1983. The depth and breadth of his academic production is witnessed by the (selected and briefly commented) bibliography annexed to this volume. The contributions gathered in this Special Issue further speak in favour of the significance of his work. What we want to emphasize here, however, is not just that, and not even the concrete results he achieved in his career—which we will briefly hint at below. We would like to begin with don Giuseppe’s “unity of life”. He acted as a professional scientist at the beginning of his career, as we have seen, and never quitted with science: he currently is Adjunct Scholar at the Vatican Observatory and his last 4-volume work is titled *Fundamental Theology in Scientific Context*. He studied theology, and became a priest before completing

his PhD: we are eyewitness of his fervent commitment in his ministry, always ready to serve the faithful and act as a pastor and formator in every contest he is asked to help, in spite of his many professional commitments as a scholar and university professor. He teaches fundamental theology with the deepest and steadiest conviction that faith is, of course, a gift and a grace, but also needs to be nourished with rational (philosophical) reflection, and with an enchanted look at reality as disclosed by the sciences, and ultimately always understood as God's creation.

His being a scientist, a theologian and a priest conspired to make of don Giuseppe also an "entrepreneur". Not a businessman, of course, but someone who intended to concretely realize contexts, promote initiatives, nurture synergies, and create occasions to the advantage of humanity: not "humanity" as an abstract notion but the real and concrete persons he met all throughout his life. The concrete outputs of his entrepreneurial activity will be mentioned below. What is worth mentioning here is that this adds a further dimension, besides science, faith and culture, to his life and career: *work*. He is not "just" a scientist enquiring the secrets of nature; he is not "just" a priest praising God and serving the faithful; he is not "just" a theologian reflecting on Revelation and teaching theology to new generations of priests and pastoral agents. He is also a professional who founded three websites, a Research Centre, and an Interdisciplinary School addressed to young graduates. He also managed them for twenty years; he coordinated the many people who have collaborated with him; he entertained fruitful relationships with several hundreds among authors, speakers, contributors, researchers, students, etc. Last but not least, he raised funds to support all that, and administered them judiciously and with vision.

All this reflects a "unity of life", in which every front of engagement is coherent with the rest, never juxtaposed but always harmonized. Such a unity of life, by his own admission, can be traced back to the teaching and example of Saint Josemaría Escrivá and to a "radical" fruitful conviction: "every truth, no matter who says it, is always from the Holy Spirit"¹.

¹ THOMAS AQUINAS, *Summa Theologiae*, I-II, q. 109, a. 1, ad 1: *Omne verum a quocumque dicatur a Spiritu Sancto est*

AN ENGAGED THEOLOGY

The unity of life sketched above reflects the fundamental conception of knowledge beneath the work of Giuseppe Tanzella-Nitti. Actually, this also explicitly constitutes one of his research topics: the unity of knowledge². Beyond that, this topic is truly foundational in don Giuseppe's scientific production and represents a tenet at the very heart of the "Interdisciplinary Dictionary in Science and Faith" (*Dizionario Interdisciplinare di Scienza e Fede*, Città Nuova and Urbaniana University Press), edited in 2002 along with Alberto Strumia. A significant part of don Giuseppe's career stems from this enterprise, which he realized when he was a professional theologian with a solid scientific background career³. The notion of "unity of knowledge" refers to the conviction that there must be a fundamental unity among the natural sciences, the humanities, philosophy at large, and theology understood both as a human science and as the reflection upon the Wisdom that God's Revelation entrusts to humanity. Consequently, a deep interdisciplinary – or, better, trans-disciplinary – mindset follows, according to which not just philosophy, but specifically theology has full right to take part in the human cognitive enterprise. From this viewpoint, theology is regarded on a peer with other disciplines in the effort to understand the cosmos, the world, creation, in all its many facets, levels, and complexities. Hence, its part is both in attentively listening to what other disciplines have to say and in stating its own specific tenets with rigour, clarity and balance. Things being so, theology should never consider itself as an isolated discipline, but as an open one, ready to engage itself in discussions, research and debates. Moreover, it must be able to intercept the deepest feelings of real and concrete human beings – specifically, for don Giuseppe, those of women and men of science. This follows from another fundamental tenet, again already at the core of the *Interdisciplinary Dictionary*: science is never a neutral, impersonal enterprise but one that involves the *personal* dimensions of the researchers, their values, motivations, attitudes, life-experiences, etc. This consideration actually constitutes an existen-

² G. TANZELLA-NITTI, *Unity of Knowledge*, "Interdisciplinary Encyclopedia of Science and Religion", 2002; DOI: 10.17421/2037-2329-2002-GT-8 (<https://inters.org/unity-of-knowledge>).

³ G. TANZELLA-NITTI, *20 anni fa nasceva il Dizionario di Scienza e Fede*, 2022 (<https://disf.org/editoriali/2022-01>).

tial link between unity of life and unity of knowledge – a link that don Giuseppe made concrete all along his career. A further dimension of his engaged theology is the attention to evangelization – as attested by a research project he is currently directing at the Pontifical University of the Holy Cross titled “Towards a Theology of Evangelization”⁴. The aim of the project is to develop a specific theological reflection on the new needs and practices of evangelization: again, unity of life (as a pastor) and of knowledge (as a theologian).

A PRODUCTIVE CAREER

After his scientific studies and work, and his theological education, don Giuseppe has been among the first-generation faculty members of the Pontifical University of the Holy Cross, which is celebrating this year its fortieth anniversary. He has seen the Holy Cross University growing, never sparing his efforts to the cause. A key turning point in his life and career was the accomplishment of the *Interdisciplinary Dictionary in Science and Faith*. This work was never intended to be “just” a publication. Indeed, during the early preparation of the *Dictionary*, in 1999, the web domain *disf.org* was registered. Already at that time, the idea of affecting the larger audience via the web was clear. Moreover, soon after the publication of the *Dictionary*, in 2003, a group of scholars (including a number of authors of the *Dictionary*’s entries) gathered around the *Dictionary*’s Editors, soon joined by a group of young graduates in scientific disciplines eager to complement their specialization with a broader, trans-disciplinary perspective. From here, in the ensuing years, three concrete “lines of action” emerged: the establishment of a research centre, the creation of a website specifically dedicated to “science and faith”, the formation of a context in which graduates and young scholar with their specializations could be nourished with a trans-disciplinary approach grounded on the unity of life and of knowledge. Interestingly, these three lines of action essentially correspond to the three missions of the university: research, teaching, and dissemination (the so-called third mission).

Well, the DISF Research Centre is nowadays an established unit within the Pontifical University of the Holy Cross, where interdisci-

⁴ Cfr. <https://www.pusc.it/research-project/evangelization>.

plinary research on fundamental topics at the crossroad of science, philosophy and theology are inquired. The Centre also manages three websites: *disf.org*, *inters.org* and *DISF Educational (disf.org/edu)*. The first one hosts a number of entries of the original *Dictionary* as well as a plethora of other documents related to science and faith (it counts more than 20.000 pages among editorials, anthological passages, special issues, articles from the press, bibliographies and biographies). The second website is in English and hinges on the *Interdisciplinary Encyclopedia in Religion and Science* where new entries are published from time to time (along with other material of interest). The third one—the newcomer, launched in 2021—is addressed to school teachers and high-school students and offers contents to deepen issues in science and faith at school or among teenagers in whatever context. Together, the three websites receive more than one million visits each year. The DISF Research Centre also promotes the “International Superior School for Interdisciplinary Research” (*Scuola Internazionale Superiore per la Ricerca Interdisciplinare – SISRI*), which offers an educational program for young graduates in whatever discipline who wish to complement their specialization with interdisciplinary insights on the Big Questions in Science and Faith. The school has had about 500 registered students along the years, has involved more than 50 speakers, has organized almost 100 seminars, 15 annual workshops and several summer activities. The Research Centre, the websites, and the SISRI have been not just conceived, planned and initiated by don Giuseppe, but also directed and managed by him since their birth up to now.

These are the concrete fruits of rev. prof. Giuseppe Tanzella-Nitti’s career, which we wanted to honour with the present special issue. Of course, all that adds up to his academic publications (19 books and more than 130 articles or book chapters), his formal teaching activity at the Faculty of Theology, the innumerable conferences and contributions in myriad different public and specialized contexts, his popular articles on newspapers, online contents, interviews, etc.

All that stems from an engaged theology lived and practiced in view of the ideal of unity of life and of knowledge, with a deep trans-disciplinary approach and... much, much hard work.

THIS SPECIAL ISSUE

In the following pages, the readers will find 12 contributions touching on topics in Science and Theology about which Giuseppe Tanzella-Nitti has given invaluable contributions. The first article is a *status quaestionis* authored by Paul Allen and titled *A Fundamental Theology for Doctrine: Science and History*, where the author dialogues with Tanzella-Nitti's interpretation of scientific work and knowledge in the context of fundamental theology in the light of the theologies of authors like McGrath, Lonergan, Rahner and Benedict XVI. Then, Javier Sánchez-Cañizares, with his study *Science-Mediated Natural Theology: Unraveling the Burden of Proof*, addresses the key issue of the possibility of a natural knowledge of God exploring the relations between classical natural theology and the developments of modern science, taking especially into account Tanzella-Nitti's theological reflections on Creation. Alberto Strumia's *Aquinas' Legacy in the Contemporary Dialogue Between Science and Faith* presents epistemological aspects central to the dialogue between science and faith as rooted in Thomas Aquinas' thought, also nicely reporting how this was one of the starting points of his collaboration with don Giuseppe. Giuseppina De Simone, with her contribution titled *Returning to Religious Experience: The Contemporary Challenge in the Dialogue Between Philosophy and Theology*, engages with an issue extensively represented in Tanzella-Nitti's production: religious experience, specifically addressed starting from the interplay between philosophy and theology in view of the *quaestio Dei*. According to the transdisciplinary outlook of don Giuseppe's fundamental theology, Lluís Oviedo reflects on *How the New Scientific Studies of Religion Impact on Fundamental Theology*. Paul O'Callaghan's article about *The perception of Logos ut ratio and Logos ut verbum in Creation* deals with the theology of the *Logos*—a topic often subject of Tanzella-Nitti's reflections—and the interplay between God's transcendence and immanence. Claudio Tagliapietra, in his article about *The Humanistic Dimensions of Scientific Research*, takes on another central topic in Tanzella-Nitti's production—the personal engagement of the scientists in making science—also including personal reports about his interactions with don Giuseppe on this topic. Giulio Maspero's contribution is titled with the very same expression we used above to grasp a core aspect of don Giuseppe's personality and theology: *Unity of Life, Unity of Knowledge*; the paper is also enriched by a “personal” introduction and a “grateful”

conclusion. The metaphor of the “book of nature”—highlighting how the visible world can speak about God the Creator—is another topic at the heart of Tanzella-Nitti’s theology, and it is addressed by Oskari Juurikkala’s paper titled *The Creative and Redemptive Word: Benedict XVI’s Theology of The Book of Nature*. Guy Consolmagno reflects on *Science and Faith from the Viewpoint of the Scientist* as a scholar “with a position in both the world of science and the world of the Church”, quite like don Giuseppe, indeed. Christopher T. Baglow offers a prospective reflection of the opportunities disclosed by the attempt at teaching theology in the light of science, thus capturing another priority in Tanzella-Nitti’s career; his paper is titled, accordingly: *Beyond Conflict: Teaching Theology in the Light of Science*. Lucio Florio’s article *The Use of Experimental Sciences by Theology. Giuseppe Tanzella-Nitti’s Contributions in the Context of Fundamental Theology* offers an in-depth analysis of the role that the natural sciences have actually played in the development of Tanzella-Nitti’s fundamental theology.

Thus, the reader of this special issue will be guided by authoritative and expert authors in a journey across the many theological topics addressed by Giuseppe Tanzella-Nitti’s in his career. We also assure the readers that, besides that and thanks to the brilliant contributions gathered in the following, they will also find several valuable insights in a number of key and highly debated current theological issues. We are sure, moreover, that don Giuseppe will read them one by one, carefully, eager to learn more and more as it has always been and still is.

ACKNOWLEDGMENTS, AND GRATITUDE

A project like the one we are introducing involves many people. We would like to briefly thank all those who made this special issue possible. First of all, the Director—Vicente Bosch—and the members—Marco Vanzini, Arturo Bellocq, Fernando López Arias, Catalina Vial—of *Annales Theologici’s* Editorial Board, for having accepted our proposal and for their support at all stages of the process. Special thanks to Maria Veltri, Editorial Secretary, for her competent work to transform all the manuscripts in publishable papers: though the authors have been diligent in following the guidelines, we know that hard work is always needed on the manuscripts.

Sincere and wholehearted thanks to the Authors, of course. Their engagement in this project demonstrates their appreciation of Tanzella-Nitti's work. Above all, we thank them as they produced academic papers of a high standard though they knew their contributions were for an issue celebrating a colleague. We value this enormously.

Annales Theologici adopts a double-blind peer review policy; hence, we had to contact a number of scholars asking them to review the papers. Their help has been crucial to ensure the quality of this special issue. All of them could have well been among the authors of this special issue; we are sorry we could not include them as authors, and this increases our gratitude for their help. We list them here in alphabetic order:

Fausto Gianfreda, S.J. (Pontifical Gregorian University and Pontifical Theological Faculty of Southern Italy)
 Niels Henrik Gregersen (University of Copenhagen)
 César Izquierdo Urbina (University of Navarre)
 David S. Koonce, L.C. (Pontifical Athenaeum Regina Apostolorum)
 Joseph R. Laracy (Seton Hall University)
 Francisco Sánchez Leyva, S.D.B. (Pontifical Salesian University)
 Rafael A. Martínez (Pontifical University of the Holy Cross)
 Ilaria Morali (Pontifical Gregorian University)
 Stefano Oliva (University Niccolò Cusano, Rome)
 Juan José Sanguineti (Pontifical University of the Holy Cross)
 Mariusz Tabaczek, O.P. (Pontifical University St. Thomas Aquinas)
 Gerard Kevin Whelan, S.J. (Pontifical Gregorian University)
 Giovanni Zaccaria (Pontifical University of the Holy Cross)

Three of us—Ivan, Marco and Salvatore—would also take this occasion to express their gratitude to Claudio. We acted as a team, planning the special issue together and taking decisions at all stages with friendly collaboration. However, Claudio has led the process and managed the contacts with both authors and reviewers with great competence, much dedication and a lot of work. Many thanks, Claudio.

Finally, we cannot resist to express our deep gratitude to rev. prof. Giuseppe Tanzella-Nitti. As we have mentioned, we have all been collaborating with him for years. We received a lot from this collaboration. He has been a teacher for us, both in knowledge and in life. He has been a guide and a trustworthy “advisor” for us, both when difficulties popped up in front of us and when opportunities disclosed. He has been an example to follow, as a respectful researcher, a humble scholar, a hu-

mane boss. We are grateful to him for the concrete results he achieved, which actually constitute the contexts for our professional growth. We are indebted to him for the trust he has placed in us, often listening to our opinions in view of decisions to be taken and letting us independently manage initiatives that he had set up. We also thank him, importantly, for the great laughs we had together, and for the fatherly patience he showed towards us when needed. Above all, we thank him as we are sure he will keep doing all that in the coming years...

Grazie don Giuseppe!

*Claudio Tagliapietra**

*Ivan Colagè***

*Salvatore L. Guglielmino****

*Marco Vanzini*****

* Faculty of Theology, Pontifical University of the Holy Cross, Rome; DISF Research Centre, Pontifical University of the Holy Cross, Rome.

** Faculty of Philosophy, Pontifical University of the Holy Cross, Rome; DISF Research Centre, Pontifical University of the Holy Cross, Rome.

*** Osservatorio Astrofisico di Catania, Istituto Nazionale di Astrofisica (INAF); *Scuola Internazionale Superiore per la Ricerca Interdisciplinare* (SISRI), DISF Research Centre, Pontifical University of the Holy Cross, Rome.

**** Faculty of Theology, Pontifical University of the Holy Cross, Rome.

STATUS QUAESTIONIS

A FUNDAMENTAL THEOLOGY FOR DOCTRINE: SCIENCE AND HISTORY

PAUL ALLEN

Corpus Christi College, Vancouver

ABSTRACT: The categories that fundamental theology treats as key for the meaning of doctrine are largely historical. A fundamental theology that begins from the standpoint of the scientific enterprise of understanding nature is therefore orthogonal to the gospel and its doctrinal explication, although not contrary to it. In response to the work of G. Tanzella-Nitti, this paper evaluates theologians (McGrath, Lonergan, Rahner, Ratzinger), whose work has operated by deploying categories that treat *both* nature and history. Fundamental theology may be both a natural theology and a theology of historical meaning, but two things are required. First, it needs a better distinction between general and special categories without separating philosophy from theology. Second, recognizing a post-positivist turn in the philosophy of science, Christian wisdom uncovers the anthropological nexus between scientific and historical aspects of natural theology, as most clearly indicated in Ratzinger's theology.

KEYWORDS: Fundamental Theology, Giuseppe Tanzella-Nitti, Karl Rahner, Bernard Lonergan, Alister McGrath, Joseph Ratzinger, Science and Theology, Natural Theology, History, Hermeneutic, Catholic Theology.

RIASSUNTO: Le categorie che la teologia fondamentale considera come essenziali per il significato della dottrina sono in gran parte storiche. Una teologia fondamentale che parte dal punto di vista dell'impresa scientifica di comprensione della natura è quindi ortogonale al Vangelo e alla sua esplicitazione dottrinale, anche se non contraria ad esso. In risposta al lavoro di G. Tanzella-Nitti, questo articolo valuta i teologi (McGrath, Lonergan, Rahner, Ratzinger) il cui lavoro ha impiegato categorie che trattano sia la natura che la storia. La teologia fondamentale può essere sia una teologia naturale che una teologia del significato storico, ma sono necessarie due cose. In primo luogo, è necessaria una migliore distinzione tra categorie generali e speciali, senza separare la filosofia dalla teologia. In secondo luogo, riconoscendo una svolta post-positivista nella filosofia della scienza, la sapienza cristiana scopre il nesso antropologico tra gli aspetti scientifici e storici della teologia naturale, come indicato più chiaramente nella teologia di Ratzinger.

PAROLE CHIAVE: Teologia fondamentale, Giuseppe Tanzella-Nitti, Karl Rahner, Bernard Lonergan, Alister McGrath, Joseph Ratzinger, Scienza e teologia, Teologia naturale, Storia, Ermeneutica, Teologia cattolica.

SUMMARY: I. *Survey of Fundamental Theology in a Scientific Context*. II. *Patristic Foundations: Irenaeus*. III. *Karl Rahner's Fundamental Theology*. IV. *Bernard Lonergan, Consciousness and Fundamental Theology*. V. *Joseph Ratzinger and the Logos*. VI. *Conclusion*.

Fundamental theology is the genre of theology that supports but does not supplant the biblical sources and the doctrinal tradition of the Catholic faith. It is often associated with systematic theology or it is seen to be equivalent to systematic theology. More plausibly however, it is equated with the prolegomena or foreword to theology. It is a genre of theology that addresses assumptions, frameworks and categories into which the other fields of theology are somehow mapped. The metaphor of a map for theological fields is apt because the map and its demarcated territories has been utilized as a way of configuring both the scope of a discipline and the relationship between theology and the natural sciences over time. In a well known work on the 'territories' of science and religion, Peter Harrison claims:

So familiar are the concepts "science" and "religion," and so central to Western culture have been the activities and achievements that are usually labeled "religious" and "scientific," that it is natural to assume that they have been enduring features of the cultural landscape of the West.¹

Something identical is true for the various fields within Christian theology. Fundamental theology is in some sense a historically recent emerging field yet its role and its scope has been a part of theology for millennia. Of all the genres of contemporary theological discourse, fundamental theology possesses the most interdisciplinary significance, as Tanzella-Nitti has shown.² Not only does fundamental theology serve

¹ P. HARRISON, *The Territories of Science and Religion*, University of Chicago Press, Chicago 2015, 3.

² See especially the four volume work by Tanzella-Nitti that is published in Italian as *Teologia della Credibilità vol. 1: La Teologia fondamentale e la sua dimensione di apologia* (2015); *Teologia della Credibilità vol. 2: La credibilità del cristianesimo* (2015); *Teologia fondamentale in contesto scientifico - Teologia della Rivelazione vol. 3: Religione e Rivelazione* (2018) and *Teologia fondamentale in contesto scientifico - Teologia della Rivelazione: vol. 4: Fede, Tradizione, Religioni* (2022). This article refers to the English language compilation of the material covered in these four volumes that appeared in 2022 as *Scientific Perspectives in Fundamental Theology: Understanding Christian Faith in the Age of Scientific Reason* (Claremont Press). Cfr. G. TANZELLA-NITTI, *La dimensione apologetica della Teologia fondamentale. Una riflessione sul ruolo dei "praeambula fidei"*, «Annales Theologici» 21 (2007) 11-60.

as a bridge to other disciplines, especially philosophy, it has done so in different ways over time. Here is where the map metaphor serves us well. In the fairly recent past, Catholic fundamental theology was comprised of a set of manuals in a tradition that took the corpus of Thomas Aquinas and recapitulated it in a conceptual schema in keeping with a deductive inference bound scholasticism. Fundamental theology in this neo-Thomist key was epistemically bound to a deductive and explicitly Aristotelian type of logical framework and also Cartesian deduction. Despite being epistemically framed within a Leonine, anti-modernist framework, the neo-scholastic theology of that era shares a family resemblance with various forms of fundamental theology, Christian philosophy and apologetics. These forms of theological discourse both preceded neo-scholasticism and followed it.³ Thus, the term 'fundamental theology' has developed different meanings historically since it has overlapped with apologetics, natural theology and dogmatic theology at different points. Each of these kinds of theological discourse has occupied ground mapped by fundamental theology, analogous to the way that science, natural history and natural philosophy have shifted over time with respect to the understanding of the natural world.

This article surveys some key themes and figures in modern fundamental theology to see to what extent the field itself is capable of absorbing the findings of science and the reflections on nature that arise in 21st century interdisciplinary contexts. The options are complex, because as we shall see, much of the past century's preoccupations in Catholic fundamental theology have been historical in nature. *That is, in modernity, until recently, Catholic fundamental theology has been retreating away from nature toward history.* But, the work of Fr. Giuseppe Tanzilla-Nitti indicates how this retreat from nature may now be halted and reversed because a post-positivist paradigm is now a common starting point in the philosophy of science. As I will show, the Logos theology of Joseph Ratzinger is best situated to provide the kind of required scope and the work of Giuseppe Tanzilla-Nitti shows how theology may proceed.

³ For a narrative on how fundamental theology was framed in the formative years prior to and during the Leonine retrieval of Thomas Aquinas, see G. McCool, *From Unity to Pluralism: The Internal Evolution of Thomism*, Fordham University Press, New York 1992.

These contributions build on some of the necessary building blocks put in place by theologians like Alister McGrath, Bernard Lonergan and Karl Rahner. In short, as Tanzella-Nitti demonstrates, there is an opportunity for fundamental theology to become re-directed toward nature, in keeping with some of the important indicators from key theological figures of recent theological memory. This paper relates how a turn to nature has occurred within Christian theology in recent decades in the work of key scholars. This turn to nature is not arbitrary when it is supported and accounted for in fundamental terms, which is precisely the thrust of Tanzella-Nitti's contribution. On the contrary, a return to nature only underscores the centrality of the doctrine of creation and some of the most important categories of theological thinking. What is more, as we shall see in the conclusion, a return to natural categories has positive implications for how we think about history and historical categories. This is bound to be the case given that the world of God's creation is a single world.

We begin with the observation that the scientific enterprise of understanding nature is orthogonal to the gospel and its doctrinal explication, although not contrary to it. By 'orthogonal', I mean that fundamental theology deploys a series of reflections that are distinct, in contrast to the personal, directly spiritual, metaphor laden and dramatic character of the stories told about Jesus Christ and the disciples in the Bible. In response to the work of G. Tanzella-Nitti, this paper evaluates several theologians (McGrath, Lonergan, Rahner, Benedict XVI), whose work has operated in light of the categories that treat *both* nature and history. This is a key feature that appears in each of these theologians. McGrath is the outlier in this group since he is not a Catholic. Yet, he has been a prolific thinker leading the dialogue between science and Christian theology. As we shall see, in each thinker, there are clues over how the fusion of nature and history in a single fundamental metaphysical account might be rendered. What this survey also hopes to show is that a Christian fundamental theology of nature will always be insufficient and even incoherent unless the categories that are used to interpret nature are also pertinent to an understanding of human history as well. In a sense, this fundamental theology is a late and important response to the challenge issued by Marx and Engels in the nineteenth century, who proposed a decisive, influential program of (evolutionary) dialectics against metaphysics.

I. SURVEY OF FUNDAMENTAL THEOLOGY IN A SCIENTIFIC CONTEXT

The reference points of nature and history vie for attention in the modern period in a way that is new in contrast to pre-modern theology. Historical mindedness grew in the wake of the Enlightenment and centered around a paramount set of insights that emerged in response to the Hegelian and Marxian challenges to the Christian church. Especially challenging for reasons related to Christian thought was the rise of historical critical methods of biblical analysis. The impact of historical critical textual analyses is an indirect yet crucial factor in assessing the trajectory of modern fundamental theology. Historically, Catholic theologians interpreted the category of nature from the tradition's appropriation of Greek philosophy via terms such as *ousia* and *hypostasis*. Natural categories are closely intertwined with Christian doctrine since its inception. History as a category of change and development was incorporated only slowly and with grave misgivings over whether traditional theologies of revelation could withstand the scrutiny of modern thinkers who based their expertise not on the basis of classical letters but on a combined realisation of cultural pluralism, historical contingency, textual comparisons, Darwinian theory and theories of a very old universe. Thus, history and nature together became twin threats to the Catholic theological paradigm as part of a large bundle of emergent cultural beliefs. However, Saint John Henry Newman observed that "this one thing at least is certain; whatever history teaches, whatever it omits, whatever it exaggerates or extenuates, whatever it says and un-says, at least the Christianity of history is not Protestantism... one who is steeped in history has ceased to be Protestant."⁴ This is an ironic claim in light of the fact that church history is set against a broad canvas of human history, the terms of which were changing in ways contrary to a traditional Christian understanding by the nineteenth century. Fundamental theology arose in part because of the need to formulate a way of thinking about Christian faith without reliance upon newly vulnerable doctrinal claims. The point here is that a Catholic fundamental theology of nature cannot be separated from the struggles with historical

⁴ J.H. NEWMAN, *An Essay on the Development of Christian Doctrine*, Longman, Green and Co., London 1890, 7-8.

inquiries that helped give rise to the discipline of fundamental theology in the first place.

Fundamental theology is best understood according to three basic types. First, there is a traditional form of apologetics that has a long lineage in the Catholic tradition. Fundamental theology in this vein is ahistorical. Second, a fundamental theology has been conceived in the modern period, as I've just mentioned, is a form of theology that acknowledges and frames historical development in theology in order to expand the scope of doctrinal claims. It seeks to expand on the categories that are adequate to historical change in doctrinal formulae. Third, in line with the indications given by G. Tanzella-Nitti, a new possibility has emerged in recent decades.⁵ Tanzella-Nitti also makes an essential point about Aristotle and the recovery of a full philosophical interpretation of the natural world:

[Aristotle's] doctrine of causation, the notion of formal causality, the composition of reality in terms of potency and act, matter and form, as well as his deep philosophy of being, are all topics that still provide a useful philosophical insight into natural phenomena.⁶

So, while it is nature that is being recovered materially for a fundamental theology, formally, it is philosophy that is the key to this recovery. While Aristotle and Thomas Aquinas are central, they are not exclusive sources, since, as Tanzella-Nitti claims, theologically oriented scholars must "broaden their philosophical sources and admit different philosophical methods" into their thinking, which fits with the breadth of phenomena that need to be accounted for in metaphysical categories.⁷

The genre of fundamental theology that upholds the enduring role for metaphysics and the urgency of interpreting nature is evident among the theologians I am examining in this inquiry. This theological

⁵ See especially G. TANZELLA-NITTI, *Dialogue Between Theology and Science: Present Challenges and Future Perspectives*, «Religions» 15 (2024) 1304 1-22 and G. TANZELLA-NITTI, *The Role of Theology in a University Curriculum*, «Church, Communication and Culture» 9 (2024) 361-380.

⁶ TANZELLA-NITTI, *Dialogue Between Theology and Science*, 8. On the issue of formal causality, see G. TANZELLA-NITTI, *The Aristotelian-Thomistic Concept of Nature and the Contemporary Scientific Debate on the Meaning of Natural Laws*, «Acta Philosophica» 6 (1997) 237-64.

⁷ *Ibidem*, 9.

genre does justice to both the metaphysics of nature on the one hand and the theology of history on the other hand. This nascent theological discourse is capacious about the standard metaphysical prolegomena of the theological tradition while aware of the modern and postmodern focus on the existential and transcendental contexts for doctrine and church tradition.

The emergence of this third way of thinking about fundamental theology in the Catholic tradition is something that might surprise theologians who were writing only a few decades ago. In 1969, the hermeneutical theologian Claude Geffré wrote:

The most common definitions [of fundamental theology] today betray a definite uncertainty about the epistemology of a discipline which wants to fulfill at the same time the function of the old apologetics—i.e., that of providing a rational justification of the Christian faith—and exercise the critical function inherent in all science—i.e., that of explaining the basis and method of the science of theology.⁸

Thus, there is definite perceived tension that is built in to fundamental theology by virtue of the early modern turn to critical history and critical methods of textual analysis. Of course, much depends on the way that such a depiction of apologetics, justification and the ‘critical function’ mean for Geffré. But this portrayal of the problem certainly resonates with the general situation of fundamental theology, at least in the years after the Council.

The positive resonance evident in the reference to “science of theology” is understood in terms of what Geffré sees as its ‘critical function’. Yet it is a reminder of the structuring principle that was offered by St. Thomas Aquinas. For Aquinas, a science is an organized discipline of study in a particular area, whether it is investigated through public reason or thanks to divine revelation, as with theology. In contrast to the other disciplines that rely upon logic and experience in a particular domain, theology is known as sacred doctrine and derived from divine revelation. Of course, the tension that is introduced by this different source of intellectual inquiry means that theology’s starting point is complex. That is, theology is both dependent upon actions of God

⁸ C. GEFFRÉ, *Recent Developments in Fundamental Theology: An Interpretation*, in J.B. Metz (ed.), *The Development of Fundamental Theology*, *Concilium* 46, Paulist Press, New York 1969, 5.

that are interpreted as a form of unveiling while at the same time, theology is made up of publicly available tools and methods of inquiry that overlap greatly with those used in other disciplines, especially philosophy. It is precisely the difference between theology and philosophy that is the first issue that Thomas Aquinas deals with in the first article of the *Summa theologiae*. That opening distinction allows for theology (sacred doctrine as Aquinas calls it) to exist as a discipline. The rendering of this basic distinction between philosophy and theology is not necessarily a matter of apologetics, although it can be construed as such. Regardless of the extent to which the polarisation that Geffré depicts between apologetics as a discourse of justification and theology as a critical science is true, the tension that he describes has been evident for fifty years in Catholic thought. Each of the theologians profiled in this summary of fundamental theology sees a way to heal the divide between these two basic ways of thinking. In that sense, they give witness to the significance of what Tanzella-Nitti undertakes in his interpretation of science in fundamental theology.

Extending from Boethius' form of theistic philosophy through the Leonine appropriation of Thomas Aquinas, Catholic apologetics has frequently relied upon syllogism, scholastic and logical forms of inference to the best explanation for the world and its orderly structure in order speak about God. Theological apologetics utilizes various interpretations of nature, such as the natural law or design arguments that see nature as precisely fine-tuned to constitute evidence for a creator. In fact Tanzella Nitti's own contribution explores this aspect of the apologetical dimension, for example in his discussion of Extra-Terrestrial Intelligence (ETI).⁹ The ongoing aim of much theological apologetics is the goal of credibility. In that sense, contrary to how Karl Barth conceives of theology, apologetics is a publicly facing type of discourse. But, as we shall see, fundamental theology, insofar as it projects an apologetical aim, does not necessarily reject anti-modernist claims. It does not dismiss as ignorant the subjective dimension of Christian theology as some of this first type of apologetics has done. This approach is similar to that of the philosophers of science who follow the critical realist school. On critical realism, as with this apologetics, science is carried out with

⁹ See TANZELLA NITTI, *Scientific Perspectives on Fundamental Theology*, 299-319.

attention to both the objects of science while attending to the historical and subjective features of inquiry that affect the insights and judgments that scientists formulate. Alister McGrath has given increased attention to this matter in his writings over the years.

But, there is another form of fundamental theology that has arisen in Catholic modernity that attempts to show how revelation is credible as God's initiating message for humanity. This second way of thinking about fundamental theology is what Geffré alludes to in his reference to a critical discourse. On this way of formulating the theological task, a theology of revelation actually reacts against the earlier, apologetical contours of the first form of fundamental theology by utilizing the insights of spiritual theology in particular to stress the invitation-al character of God's grace. It also takes historical development as its central concern. As we shall see in the writings of Rahner, Lonergan and Ratzinger, there is ample reason to now suppose that this earlier distinction between apologetics and critical theology was not only interpreted as a rupture between two different styles of doing theology but also as a distinction without an enduring relevance. Most post-conciliar Catholic theology became characterised as optimistic about the world. However, ironically, the lack of attention to metaphysics and other matters pertaining to nature that were previously covered by apologetics rendered this new form of fundamental theology smaller and therefore more parochial as the questions of science, geopolitical turmoil and technological dystopia loom ever larger. This second kind of fundamental theology, for all its vigour in regards to the historical particulars of specific categories of persons, political struggle and the social relevance of gospel texts, is prone to historical myopia. The intra-Catholic tension between the largely Thomistic form of apologetics and the historicist revisionists has given way, as I have mentioned, to hybrid forms of emerging fundamental theology. There are parallels in the Protestant world and within the science-theology dialogue itself. Helpfully, each of these worlds overlap.

One can see evidence of this third way in forging a new kind of fundamental theology in a recent volume that correlates nicely with the themes I am touching on here. Carmody Grey's book *Theology, Science and Life* takes the work of John Milbank and interprets it in light of the philosophy and theology of biology. In that work she notes in regards

to Milbank's thought that "the basic impetus is non-violent: theology's story is the story which has room for all stories. Theology's own 'difference', which is its 'mastery', is the difference of peace, which it effortfully narrates here below, always with varied consistency and success."¹⁰ Milbank's argument for theology's regnant role in the range of disciplines represents an effort in the Anglo-Catholic and Protestant world (Milbank is in the Church of England, which straddles different currents in church polity and tradition) to re-establish theology's authority vis à vis the social sciences. Grey is sympathetic to the effort for such re-establishment to occur as an interpretation of the created order itself, although she does not want to repeat the historic, imperialistic errors of dominant Christendom.

Grey's reference to the category of narrative and to Milbank's own preference for the poesis of Christian peace are signs that a largely historical, phenomenological and even romantic frame of reference still predominates in the literature on theological method. If this is fundamental theology of a kind, the categories are largely taken from within a historical framework, but in a way that opposes the earlier, simpler 'critical discourse' approach. Grey's position is explicitly situated as an interpretation of nature. In order for a broader theology to emerge, she relies on Michael Hanby's recent work. Hanby is a Catholic scholar whose own foray into the exchange with the natural sciences also begins from a Milbankian perspective. Hanby concurs with Milbank's opposition to the 'fantasy' of a self-grounding reason. For both thinkers, the practice of science and natural reason itself is implicitly theological by virtue of its own orientation to the understanding of the order of the world. Hanby, writing as a Catholic, is not content to reinscribe theological mastery in this manner because he also sees, as Milbank does not, that there is a proper autonomy to scientific inquiry, evident in the act of making distinctions and abstractions. However, this autonomy to science is granted by God, as is

¹⁰ C. GREY, *Theology, Science and Life*, Bloomsbury, London 2023, 86. The book to which Grey is largely responding and which touched off debates that are still ongoing decades later is: J. MILBANK, *Theology and Social Theory: Beyond Secular Reason*, 2nd ed., Blackwell Pub., Oxford 2006.

recognized by theology.¹¹ The difference between Milbank and Hanby is described by Grey as follows:

In contrast to Milbank's articulation of theology's mastery of the disciplines, however, which takes as its goal the liberation of theology from its modern captivity, Hanby's account takes as its chief concern the *conflation* of science and theology which results in science posing as theology, as in the work of the New Atheists, or theology posing as science, as in creationism, both of which are among Hanby's targets.¹²

She continues,

Where, for Hanby, the distinction between God and world established by the doctrine of *creatio ex nihilo* grounds the difference between theology and the sciences, Milbank's metaphysics of participation questions a too-definite distinction of God from world: the world is the mediation of God for us, and God is not for us 'an other' to the world.¹³

To avoid conflation, Hanby demarcates a semi-autonomous epistemic stance for the sciences, on the proviso of *creatio ex nihilo*. Thus, for Hanby, "the claims of evolutionary biology are neither here nor there from a theological point of view."¹⁴ Hanby's viewpoint expresses a form of confidence about universal reason, as Grey elaborates in her analysis. Reading such accounts of science in the light of considering the historiographical problem of theology leads us straight to the question of fundamental theology and the degree of humility and confidence that it expresses. Hanby and Milbank, and to a great extent Grey herself, are preoccupied by questions of the status of theology in modernity. The character of theology is deeply contested of course within Catholic tradition, with increased tensions within the guild of Catholic theology fully evident. As I will show, each of Rahner, Lonergan and Ratzinger have solutions to the problem of how to address science from the perspective of fundamental theology that goes beyond questions of historiography. What each of these thinkers shares is a commitment to universal reason, in contrast to Milbank but consistent with Hanby. The point here is that a post-Christendom humility mixes with a boldness

¹¹ M. HANBY, *No God, No Science: Theology, Cosmology, Biology*, Wiley-Blackwell, Oxford 2013.

¹² GREY, *Theology, Science and Life*, 122.

¹³ *Ibidem*, 131.

¹⁴ *Ibidem*.

about the regnant authority of Christian theology, a discourse about the peace that God brings.

Grey herself offers something of a fundamental theological key in her proposal, which is centered on the notion of life. Grey's view, which interprets and departs from the thought of the philosopher of biology Hans Jonas, is Christian vitalism. The details of her metaphysical account notwithstanding, the mode of her proposal is at the level of fundamental theology and this is significant because of how she arrives at the place where fundamental theology has been preoccupied over the centuries: how to understand nature as a prelude, a pretext and a mode of speaking about God. She writes: "In Jonas's recognition that life generates value, that it necessitates a notion of the good, is articulated the pervasiveness of the moral. This is the Christian truth of the involvement of all nature in the drama of salvation: there is no non-moral nature, no nature to which notions of 'good' and 'evil' do not in some way apply."¹⁵ Grey expresses the point that was recognised by C.S. Lewis some time ago, which is the idea that our very ideas of goodness and evil are laden with theological meaning because there is no way for these moral notions to make sense without a theological measure of their meaning. For Grey, something of the same insight is available to us from within the seemingly autonomous realm of biology. Where categories such as life are enormously helpful is in identifying the commonalities between the earthly and the heavenly. Grey's proposal is couched in accessible language, such as the 'reverence for life' and 'solidarity of life'. It builds on much of the new ecological consciousness that is taking shape in contemporary culture. Before we come to distill further elements of a fundamental theology that depart from or take account of nature and science, I think it would be advisable to navigate one historical detour, the contribution of Irenaeus, in order to provide a more adequate context for contemporary fundamental theology.

But first, another, very prominent writer in the science-theology dialogue who has written on all the issues that border fundamental theology is Alister McGrath. In fact, of all the writers in English, McGrath's name is perhaps the most well known, especially given the prolific output throughout his career, notably at the University of Oxford as the

¹⁵ *Ibidem*, 231.

Idreos Professor of Science and Religion at Oxford from 2014 – 2022. McGrath's engagement with science and nature, as concepts worthy of theological examination, is probably the most extensive among contemporary theological scholarship. However, in contrast with Catholic thinkers, his choice of genre is natural theology not fundamental theology. Nevertheless, given the wide appeal of McGrath's work and his insights into the conceptual nuances of philosophically freighted issues in theology, an appraisal of his work is an important benchmark in understanding the situation of the fundamental theology of nature.

McGrath's interpretation of natural theology is made with respect to its historically problematic status in Christian thought. In the eighteenth century, Isaac Newton's earlier celebrated view of the natural world as the demonstration for the wisdom of God's providence gave way to Hume's critique of that and other forms of natural religion. McGrath is aware that natural theology faces a number of contentious objections such as Hume's charge that natural theology ignores instances of natural evil or that Darwin's theory of evolution contradicts William Paley's argument for the creation of the world based on the mechanical analogy of a watch to its watchmaker.¹⁶

However, despite the drawbacks to natural theology, McGrath sees fresh potential for a contemporary natural theology in the light of three phenomena that share the characteristic of being anti-reductionistic in philosophical terms. McGrath cites the re-emergence of teleology in biology, cosmic fine tuning in physics and the insight that human beings appear to be naturally religious according to researchers in the area of the cognitive science of religion.¹⁷ One of the clear implications of McGrath's prognosis of natural theology is the fact that it is conceived largely in terms of identifying evidence that supports Christian belief. As such, it is oriented to particular *doctrines*. In the case of the three criteria just mentioned, the doctrines of creation and of the *imago dei* are the relevant touchstones. Does natural theology displace fundamental theology, given that natural theology's apologetical thrust is seemingly

¹⁶ A. McGRATH, *Natural Theology*, in B.N. WOLFE *et al.* (eds.), *St. Andrews Encyclopaedia of Theology*, University of St. Andrews 2022 (Article published August 10, 2022: <https://www.saet.ac.uk/Christianity/NaturalTheology>).

¹⁷ *Ibidem*, sec. 11.

so central? Not necessarily, since, with McGrath, there is more than natural theology that is foreseen as adequate.

Moreover, in several of his monographs, McGrath has also laid out the terms and conditions of what he calls, following the example of Thomas Torrance, ‘scientific theology’. Counter to the expectations of what this expression entails for some, McGrath constructs a notion of scientific theology that is non-foundationalist. That is, following the procedures followed in the natural sciences themselves, Christian theology cannot dictate in *a priori* fashion what needs to be known. For McGrath, in scientific theology, “knowledge is *a posteriori*, and conditioned by the specific nature of the scientific discipline and its object.”¹⁸ McGrath’s theology is constructed in large part against a foil, which is the Enlightenment version of natural theology, specifically, versions of ‘physico-theology’ that were especially prominent in Great Britain during the eighteenth and early nineteenth centuries. This natural theology embodied what, for McGrath, is the christologically deficient philosophical tradition of Descartes and other rationalists. This tradition offered a conceptually predetermined view of what could be known about God rather than a view determined by what God does reveal. Therefore, what is crucial for the kind of scientific theology McGrath advocates is a prominence for divine revelation. But this is not a stance that he indicates independent of an alliance with the natural sciences. On his view, the theological alignment with science should be cognizant of science’s own openness to phenomenological examination. For the philosopher Edmund Husserl, McGrath notes, science is interested in the given realities to which the mind is naturally open. Science works, moreover, when it is not “inhibited by preconceived epistemology” such as was arguably the case with the Aristotelian influence on natural philosophy in the medieval and early modern period.¹⁹

The same is true in theology. And in this regard, McGrath evinces an anti-metaphysical influence that is present across the Protestant theological world, namely that of Karl Barth. For McGrath, the point of scientific theology is that Christian thought should be shaped according to the unique realities arising from the object of its inquiry, the

¹⁸ A. McGRATH, *A Scientific Theology: Volume 2 Reality*, Eerdmans, Grand Rapids 2002, 288.

¹⁹ *Ibidem*, 272.

person of Jesus Christ. Inspired by Thomas Torrance and St. Athanasius, a scientific theology is ‘kataphysical’. We know something really only according to what *it* is.²⁰ Furthermore, in a nod to the unique significance of analogical language in theology, our terms are stretched beyond their natural sense when we turn to refer to God. This view is different from the views that we will explore later in the fundamental theology of Rahner and Lonergan, for whom there are categories that in some sense anticipate or contain what we understand in doctrine.

But, there are yet other component parts to McGrath’s scientific theology that bear mentioning for their important role in shaping its meaning. One of these elements is the epistemological claim of critical realism. This is coherent with the sense of object-driven science that McGrath describes. Critical realism claims that there is a contextual uniqueness to the process of knowing that does not prevent affirmations of entities in the world from becoming shared understandings across different domains. When theories about those entities are verified by practitioners of the discipline, often working in networks or groups, progress in science occurs. For McGrath, the *loci theologici* of critical realism are the theological theories that purport to explain the reality of God, that is, doctrines. Doctrines lay out the explanandum on the understanding that there can be theoretical constructs that allow such explanations to be constantly subject to revision and adaptation to other realities.

For McGrath, the structure and history of doctrinal claims yields a middle ground between foundationalism and anti-foundationalism in epistemology on the one hand and naïve realism and anti-realism in metaphysics. As McGrath notes, reality is not disclosed to us directly. This is coherent with Einstein’s approach and is consistent too with the critical realism of scientist theologians like John Polkinghorne, a Christian physicist. McGrath argues that in theology, knowledge of God is analogical and it is revealed to us in terms that are accommodated to our capacities.²¹ Critical realist theology means thus: “the realities which it attempts to describe and interpret are prior to such description

²⁰ T. TORRANCE, *Athanasius: A Study in the Foundations of Classical Theology*, in *Theology in Reconciliation*, Geoffrey Chapman, London 1975, 215-66.

²¹ A. MCGRATH, *The Foundations of Dialogue in Science and Religion*, Wiley Blackwell, Oxford 1998, 156.

and interpretation, and in some manner control the nature of that description and interpretation.”²² Reality is, in principle, intelligible. This is a clear feature of many fundamental theologies, even if in McGrath’s case, the elements of a fundamental theology are couched in different terms: natural theology, scientific theology, the historicity of doctrine and even natural philosophy.²³ As with other theological critical realists, it is important for McGrath that the realities that (many) scientific theories and theological doctrines interpret are unobservable in principle. The caveat on this principle of unobservability is that Christian eschatology is premised on the hope for the beatific vision of God in his glory, itself based on the historical reality of the Incarnation.

I have mentioned natural philosophy, which is known mostly as the precursor to the disciplines of the natural sciences. However, in what is yet another type of discourse that fits within a science informed fundamental theology, McGrath has written that it is now possible to retrieve natural philosophy. He calls this a ‘lost disciplinary imaginary’. It is lost because, as science became specialized in different disciplines beginning in the late eighteenth century, a cohesive vision of the whole of what we call science was lost. This kind of discourse can now be recovered according to McGrath, based in part on the idea that we already speak of science as a general term that covers a large number of disciplines that we refer to as the sciences. For McGrath, going on the integrative vision of Aristotle among others, natural philosophy can be recovered because of the recurring features in nature that we understand as beautiful and complex.²⁴ These features serve a broader agenda for a new natural philosophy however, and the link to a fundamental theology of creation is fairly clear: he seeks a better attentiveness to nature and a respect for its integrity in the context of the environmental crisis. It is this crisis then,

²² *Ibidem*, 158.

²³ The latter, along with the multiplicity of rationality is emphasised especially in McGrath’s more recent work. Cfr. *The Territories of Human Reason: Science and Theology in an Age of Multiple Rationalities*, University Press, New York-Oxford 2019. I have some doubts about whether the unity of reason that is expressed by the epistemological doctrine of critical realism is coherent with a strong stance in favour of the social construction of knowledge.

²⁴ A. MCGRATH, *Natural Philosophy: On Recovering a Lost Disciplinary Imaginary*, Oxford University Press, Oxford 2023, 177.

that suggests a need for an appreciation for nature that takes us beyond the mechanical, reductionistic and utilitarian approaches to nature that have been associated with the scientific enterprise since Francis Bacon.

Another key to scientific theology for McGrath is the christocentrism of theological science. Christ is central, the “grounding of Christian theology” such that “any resulting theology will be determined by the adequacy of its representation of Christ within that system.”²⁵ Again, the meaning of this christocentrism is potentially counterintuitive to the way in which Catholic fundamental theologians have understood their own work. For McGrath, as for Torrance, “We do not seek to impose a pattern upon theological knowledge, but rather to discern the pattern inhering in its material content [...] When we do that we are directed to Jesus Christ [...]”²⁶ For McGrath and Torrance, following the patristic example, the centrality of Christ pertains directly to the doctrine of creation. As we shall see with respect to Ratzinger’s understanding of fundamental theology, this way of thinking about scientific theology is about the perduring importance of the *Logos*, a principle of God, not a constructed concept of human rationality.²⁷ Echoing the tradition of the *analogia entis* in Catholic theology, McGrath affirms a “correspondence—not identity—between the rationality and beauty of the world and those qualities as they are found and grounded in God, revealed in Scripture and embodied in Christ.”²⁸

There is much more that should be said about McGrath’s use of terms and concepts that pertain to science and to fundamental theology. One thinks, for instance, of his reference to beauty at several points. Beauty is also a category that fits within a Christian view of literature, and McGrath has examined the Christian meaning of literature, especially the writings of C.S. Lewis in this regard. Beauty also shows up in McGrath’s exposition of natural theology unsurprisingly as well as natural philosophy as just mentioned. He cites Augustine approving-

²⁵ MCGRATH, *A Scientific Theology*, vol. 2: *Reality*, 301.

²⁶ *Ibidem*, 310.

²⁷ *Ibidem*, 313. See T. TORRANCE, *The Ground and Grammar of Theology*, Bloomsbury, London 2005.

²⁸ MCGRATH, *A Scientific Theology*, vol. 2: *Reality*, 313.

ly in saying that “The love of beauty is a transposed love for God.”²⁹ One could cite other similar categories and descriptive approaches in McGrath’s work on various genres of Christian apologetics, doctrines, historical theology, natural theology and philosophical theology that borrows especially from the philosophy of science. In short, there is a promiscuous appropriation of categories, interdisciplinary themes, epistemological insights, parallels and metaphysical claims, all of which would be equivalent to a Catholic view of fundamental theology. McGrath provides all of this without framing it in fundamental theological terms. His reference points are all relevant but not necessarily coherent across the myriad of issues that are present in his theology. The capaciousness of his theology has the additional advantage of relating to both the meta-categories of nature and history. Where McGrath’s theological system is lacking is, in fact, in giving guideposts to a system or fundamentally connected enterprise. The contents of his corpus are, in the end, too diverse and pluralistic to be considered as comprising a unified fundamental theology. The two genres that dominate overall, natural theology and scientific theology, pertain to some verification of doctrine in the mode of a systematic theology or its communication. While essentially entailed by any broad theological program, these elements are nevertheless multiple and not available as a unifying ground for doctrine. Instead, McGrath’s work is an enormous, extended effort to see what is entailed by doctrine, the effects of doctrine. Although McGrath does not develop a fundamental theology, each of the essential elements of what would make up such a discourse are present. They are scattered across his ventures into various genres of theology and philosophy. Let us turn now to examine a holistic precedent for a fundamental theology that pertains to science and nature via categories. What is key to my argument is to value the work of theologians whose attention to nature is both fundamental while not strictly apologetical or inattentive to the historical focus of other fundamental theologies. That is, we are seeking theology that expounds on doctrine by shaping it from the outset.

²⁹ A. MCGRATH, *The Open Secret: A New Vision for Natural Theology*, Blackwell, Oxford 2008, 262.

II. PATRISTIC FOUNDATIONS: IRENAEUS

Arguably, Irenaeus should be regarded as the first fundamental theologian, because his original proposal of a divine *oikonomia* (*οἰκονομία*) incorporates many reflections on the relationship between the two divine aims, creation and salvation. Irenaeus treats Christian revelation as pertaining to a complete portrayal of temporal reality between the beginning and the end, the alpha and the omega. Of special importance is the introduction of a benchmark for Christian belief which is the ‘rule of truth’, a criterion by which doctrine is measured. For instance, in his work *Against the Heresies*, Irenaeus remarks that “The rule of truth which we hold, is, that there is one God Almighty, who made all things by His Word, and fashioned and formed, out of that which had no existence, all things that exist.”³⁰ He goes on:

He who retains unchangeable in his heart the rule of the truth which he received by means of baptism, will doubtless recognize the names, the expressions, and the parables taken from the Scriptures [by the Gnostics], but will by no means acknowledge the blasphemous use which these men [the Gnostics] make of them.³¹

The key to understanding what the rule of faith is doing in this context is to focus on Irenaeus’ use of the term ‘recognition’. The conversion of the Christian fosters a new way of seeing oneself and, indeed, the world. At this level, Irenaeus is positing a *pre*-doctrinal stance that is enunciated in forms of basic commitments. These commitments do not have explanatory force in themselves, but they are certainly capable of motivating the desire to formulate doctrines. As Gavriilyuk notes,

He [Irenaeus] believed the doctrine to be so foundational as to constitute a ‘rule of truth’ [...] Structurally, the “rule of truth” paralleled, more or less consistently, the first articles of the future conciliar creeds. Somewhat simplifying, one could say that the ‘rule of truth’ was a baptismal creed. As such, the “rule of truth” was closely aligned with scripture.³²

³⁰ IRENAEUS, *Against the Heresies* (*Adv. Haer.*) I,xxii.1. See, *Ante-Nicene Fathers*, vol. 1, edited by A. Roberts, J. Donaldson, A. Cleveland, Christian Literature Publishing Co., Coxe. Buffalo 1885.

³¹ *Ibidem*, I,ix. 4. Quoted in P. GAVRIILYUK, *Creation in Early Christian Polemical Literature: Irenaeus against the Gnostics and Athanasius against the Arians*, «Modern Theology» 29/2 (2013) 22-32, 25-26.

³² GAVRIILYUK, *Creation in Early Christian Polemical Literature*, 25.

As a motivating set of commitments then, Irenaeus crafts what should be regraded as the first fundamental theology. As such, it is a first response to the biblical text and its character is narrative driven. That is, it originates in a person or a community's grasp of God's word, in the spirit of conversion to the truth.

One of the most enduring debates in theological method is the changeable relationship between scripture and doctrine. Irenaeus, while not aware of the later hermeneutical problems arising from the historical-critical method, does nevertheless see the importance of revelation and its unifying reception in the church. He sees how troubling it would be if the biblical message were to be interpreted according to different rules or systems of interpretation. Thus, his theological method alights on the importance of expressing Christian conversion as a first and fundamental step in doing theology.

We see how Irenaeus' method bears fruit in ways that have benefited the church for almost two millennia. Eric Osborn has provided a wonderful analysis of Irenaeus' use of the rule of faith, its scope and purpose. It results from a decision of faith that, while established in a context of controversy with the gnostic heresy, is about framing Christian revelation as coherent, not divisive:

Coherence comes from love, the higher knowledge which gives wholeness to life, leads to the knowledge of Christ crucified, holds the system of truth together and points a way through the mysteries of providence. As with creation and providence, so with the understanding of scripture, harmony (*consonantia*) is decisive.³³

Consonantia or harmony is thus a sense of what scripture offers when it is interpreted, in summary form. As such, it promotes doctrinal claims but is not quite doctrine, at least not in the detailed, explanatory form that we find in the Nicene formula. As Osborn notes, Irenaeus' gift to Christian theology is his explication of several vital categories of fundamental theology, each of which lifts out themes of nature and history to express the harmony that divine revelation brings. According to Osborn, the major themes that result are: divine intellect and love, economy, recapitulation, participation and the glory of God.

Each of these fundamental theological categories are fundamental in the triple sense of being biblical, a consequence of conversion and

³³ E. OSBORN, *Irenaeus of Lyons*, Cambridge University Press, Cambridge 2001, 160.

directed toward a harmonious seamless fabric of Christian doctrinal claims that are consequential upon adopting the rule of faith. For instance, recapitulation is the fundamental theological category that organizes doctrines to one another because of the centrality of Christ. The person of Christ is expressed through the fundamental theological task of 'summing up' human life, and so it pertains to Adam as the first man in contrast to Christ as the last man. God gathers together both type and archetype where Christ is the archetype and Adam is the type, being created after the image of Christ, who in turn is the true image of God.³⁴ The glory of God, understood here in this moment of fundamental conversion is nothing other than humanity fully alive, in his famous phrasing.³⁵ These categories have the additional advantage of providing an anticipation of a metaphysical formulation of Christian thought. Thus, it is Irenaeus' example that serves as one of the best models for doing fundamental theology. We turn now to the three modern figures whose fundamental theology has developed along lines that are roughly consistent with Irenaeus while being devoted to the using the categories of nature and history as prolegomena for theological doctrine.

III. KARL RAHNER'S FUNDAMENTAL THEOLOGY

Twentieth century Catholic theology is shaped in large part by the generation of European theologians who came of age in the years preceding the Second Vatican Council. Of these, Karl Rahner's name stands out. Fundamental theology is not only associated with Rahner's name but it is Rahner who was instrumental in relating this genre of theological discourse with key theological doctrines.³⁶ That is, despite Rahner's debt to the philosophy of Heidegger and Kant, Rahner's sense of obligation to demonstrate theological assumptions is loyal to the discipline, scope and norms of the theological guild. His well known retrieval of trinitarian doctrine is one example of this outlook. In one of his first major writings, Rahner provided a vigorous interpretation of Thomas

³⁴ IRENAEUS, *Against the Heresies*, III, 16.3 (<https://www.newadvent.org/fathers/0103316.htm>) and III, 22.3 (<https://www.newadvent.org/fathers/0103322.htm>).

³⁵ *Ibidem*, IV, 20.7 (<https://www.newadvent.org/fathers/0103420.htm>).

³⁶ D.R. BUDIASH, *Fundamental Theology for the Trinity: Karl Rahner's Contribution*, «Heythrop Journal of Theology» 57/6 (Nov. 2016) 917-934.

Aquinas as a theologian, not a philosopher.³⁷ This characterization of Aquinas, who is the most prolific and systematic theologian in the Catholic tradition, suggests a priority for a distinctly ‘theological theology’, as the Protestant John Webster refers to this line of thinking. That is, Rahner’s fundamental theology is not a philosophical theology. Yet it is nevertheless a theology that takes into account the anthropological conditions of its possibility.

The relevant preconditions for theology include important Catholic subject matter, such as the relationship between nature and grace as well as the question of identity of the persons in the Trinity. In such cases as these, Rahner stakes out his perspective on foundational presuppositions without abandoning a properly theological form of inquiry. In the example of human nature and grace, Rahner deploys the medieval notion of the *potentia obedientialis*, a category of human nature that indicates both a form of human desire and a passive receptivity to the occurrence of divine grace. The doctrinal dimension of the early twentieth century dispute centered on the position taken by Henri de Lubac, SJ. The question there specifically concerned whether the human person has one overarching supernatural end or whether human beings have two ends: a purely natural and a supernatural end.³⁸ The fundamental dimension of this theological controversy is the nature of the human person: “the subject who is in relation with God must be explicitly reflected upon, as the person is an integral part of God’s revelation.”³⁹ Thus, if the person is an integral part of revelation, then fundamental theology is about the human person the contents of revelation. It is revelation that is the object of *doctrinal* theology.

In the example of the Trinity, Rahner indicates a revival of the doctrinal contents of the Christian understanding of God yet in a distinctive key. Unlike Karl Barth, for whom fundamental theology is actually impossible, Rahner posits a unique and widely received view, known as his *Grundaxiom*. The proposition is that the economic Trinity is the im-

³⁷ K. RAHNER, *Possible Courses for the Theology of the Future*, in *Theological Investigations XIII*, Crossroad, New York 1983, 32-60.

³⁸ See R. ROSENBERG, *The Givenness of Desire: Concrete Subjectivity and the Natural Desire to See God*, University of Toronto Press, Toronto 2017.

³⁹ BUDIASH, *Fundamental Theology for the Trinity*, 919.

manent trinity. The fundamental theological strategy in Rahner's elaboration of this idea is that the Trinity is interconnected with both the doctrines of Christology and the doctrine of grace. This is the horizon along which fundamental theology runs: an account of the systematic nature of theology that systematic theology itself does not provide. For the revealed character of the Trinity as a reality that is simultaneously immanent and economic, it must be demonstrated as such in and through the testimony to the persons of Christ and the gifts of the Holy Spirit, starting with the biblical testimony.

From that acknowledgement, Rahner demonstrates the validity of a twofold divine self-communication. The doctrinal contents of the Trinity are justified by a set of categories that mark a way of speaking about human nature. These categories are the pairs of opposites: origin-future, history-transcendence, invitation-acceptance, and knowledge-love. For each pair, the first term anticipates the second term, as facts anticipate their fulfillment. As such, Rahner is sketching an anthropology of desire for both truth and love. God answers these twin desires in two ways, and these two ways, are experienced by human beings as God's twofold offer of God's very self. So the identity of the economic and immanent Trinity is a fundamental assumption that guides doctrinal theology because of how it logically makes sense in light of human nature. There is nothing scientific about this divine self-offering, but it does constitute a kind of apologetical approach that Rahner makes in his epistemic justification of doctrinal theology. This epistemic element is indeed the thrust of his fundamental theology.

So far, I have provided a sketch of how Rahner speaks about fundamental theology in broad terms. Reflecting his contact with the thought of Martin Heidegger and existentialism more generally, it is usually assumed that Rahner had history and the problems of historical development primarily in view as he wrote on topics of fundamental and systematic theology, but this is not entirely the case. In fact, Rahner does offer points of a fundamental theology in a more direct interpretation of scientific matters. This is definitely the case in regards evolutionary theory and the hominization process, a concept often associated with Teilhard de Chardin. Rahner's engagement with evolutionary science is an explication of his original doctoral thesis, which dealt with the relationship between matter and spirit.

Before grappling with the question of evolution directly, it is important to understand how Rahner structures fundamental theology in such a way that allows him to interpret biological evolution in a novel way that is nonetheless in continuity with Christian tradition. For Rahner, the fundamental ontological distinction that he grasps phenomenologically is the distinction between matter and spirit. This twin experience is a consequence of grappling with aspects of the infinite. In keeping with his transcendental approach, Rahner sees matter and spirit as equally capable of being conditions for the possibility of greater understanding. For him, matter is the condition for freedom (*material der Freiheit*), the condition for interacting with the other. On the other hand, being Spirit is the condition for the possibility of being a part of a great mystery. For Rahner, the twin basic experiences of self-awareness are material and spiritual. Together, these two experiences are grounds for affirming a non-reductive concept of being human, of seeing ourselves as “spirited body and embodied spirit.”⁴⁰

Rahner’s notions of matter and spirit themselves presuppose a framework of emergence and self-transcendence. These are the fundamental concepts on which is built his ‘optimistic’ view of evolutionary self-transcendence. This view resembles that of Teilhard de Chardin’s expression of human beings as the end to which the universe has evolved.⁴¹ For Rahner, the justification of this view is not scientific as it is for Teilhard but rather philosophical. For Rahner, the actualizing of self-transcendence is a way of seeing a greater coherence of the world toward God, a relationship that is in some sense bound to become closer, more conscious and more intentional. This worldview strikingly resembles the gnostic approach to spiritual communion, except that for

⁴⁰ K. RAHNER, *Die Frage nach dem Erscheinungsbild des Menschen als Quaestio Disputata der Theologie in Sämtliche Werke*, Bnd. 15, *Verantwortung der Theologie*, Herder, Freiburg 2002, 22-35. Cfr. O. PUTZ, *Evolutionary Biology in the Theology of Karl Rahner*, «Philosophy and Theology» 1 (2017) 85-105, 90.

⁴¹ Putz claims (93) that Rahner’s view is distinct from Teilhard’s view of noogenesis because of Rahner’s greater respect for disciplinary boundaries. I see a problem arising from Rahner’s debt to the Hegelian notion of absolute being as an alternative, and equivalent way to that of Teilhard for arriving at a conflation of the disciplines however. See M. BARNES, *The Evolution of the Soul from Matter and the Role of Science in Karl Rahner’s Theology*, «Horizons» 21 (1994) 85-104.

Rahner, the material world is not abandoned in what is also, and otherwise, a Hegelian account.

From this point of departure in a milieu of fundamental theology, we may therefore come to understand how Rahner expresses a theology of evolution. In short, the heavy philosophical filter that Rahner applies to the question of evolution is both insightful yet scientifically implausible. On the one hand, Rahner articulates a phenomenological starting point that captures the experience of self-transcendence. This starting point in the life of the human subject is seemingly a concession to the Kantian attentiveness to epistemic factors in the construction of a theological position. The phenomenological perspective on science is not a widely held position within the philosophy of science, but Rahner seeks an account of emergence that is contained within this phenomenological account of personhood or self-awareness.

On the other hand, however, Rahner cites on several occasions the need for directionality within the material universe so that human beings and the universe itself are not conceived along arbitrary, random or completely contingent lines. From a strictly biological point of view, as Putz argues, Rahner's view is at odds with what biologists themselves report regarding the prevalence of random chance events.⁴² But this view of directionality is at least a view of human consciousness and its' tendency to self-transcendence. According to Putz, it is this principle of active self-transcendence that serves as an "underlying metaphysical principle of evolutionary process."⁴³ This may be the case, but it does not settle the fundamental theological reason behind why Rahner intentionally offers his own interpretation of evolutionary theory.

The rationale for Rahner's defense of evolutionary theory ironically has to do with the centrality of humanity which, according to Rahner and other Catholic scholars who came of age in the pre-Vatican II period, was inaccurately defended in the papal encyclical of 1950, *Humani Generis*. Although in the 1950's Rahner had defended the teaching of that encyclical that the human species is derived from an original pair, consistent with the biblical narrative in Genesis, he later came to change his view to the polygenist position. That is, he came to accept

⁴² PUTZ, *Evolutionary Biology in the Theology of Karl Rahner*, 93.

⁴³ *Ibidem*, 101.

the position, consistent with the emerging neo-Darwinian synthesis, that the original human societies were evolved as a population from a prior species, not a differently sexed pair of individuals. Despite the differences between his view that was espoused in the 1950's and the later position that he adopted in the 1960's, Rahner nevertheless defends the same centrality of humanity and the meaning of original sin.⁴⁴ The fact that Rahner changed his view on a doctrinal question while nevertheless maintaining the same anthropological concern is testimony to the underlying importance of fundamental theology to his thought. Remarkably, his drift away from the monogenist view was accompanied by a theological shift toward christocentrism. Christ, not Adam, is the one around whom the unity of the human race was founded.⁴⁵ Thus, Christ's centrality allows for a shift at the level of doctrinal interpretation toward polygenism.

But did the changes in Rahner's approach ascertain for him a better way of thinking about science and nature? It is widely assumed that Rahner's shift, like that of many other theologians at this time, was made possible by the advances of scientific research and understanding. To be sure, there is evidence from Rahner's writing that he was aware of the importance of recent evolutionary theory and related scientific developments. However, what is explicitly evident in his thought as the main cause for his shift was his renewed attention to the concept of matter, the very subject of his early work. Matter was a key concept that lay at the basis of his fundamental theological concept, self-transcendence. For Rahner, it turns out that this prized concept in fundamental theology allowed him to shift toward the more scientifically plausible view of polygenism and away from monogenism. These are but two examples from within the vast corpus of Rahner's theological writing that demonstrate the relative stability of his fundamental theology, a stability that allowed shifts in his thinking to occur with respect to particular issues. Rahner's ability to maintain a focus on categories of nature is a

⁴⁴ K. RAHNER, *Hominisation: The Evolutionary Origin of Man as a Theological Problem*, Herder and Herder, New York 1968.

⁴⁵ See K. RAHNER, *The Sin of Adam*, in *Theological Investigations XI*, Helicon, Arezzo 1961, 247-262. Cfr. K.A. MCMAHON, *Karl Rahner and the Theology of Human Origins*, «The Thomist» 66/4 (October 2002) 499-517, 507.

major advantage in his fundamental theology even though his inclinations were otherwise preoccupied by concerns of history and doctrinal development. His accomplishment in this regard shows that even for a fundamental theologian who is devoted to an understanding of history and historical mindedness, there is still a valid possibility of interpreting nature, despite the mild flaws of interpretation (e.g.: of evolutionary theory) that emerged as well.

IV. BERNARD LONERGAN, CONSCIOUSNESS AND FUNDAMENTAL THEOLOGY

For Bernard Lonergan, in comparison with the thought of Karl Rahner, fundamental theology is both more methodologically generic as well as theologically directed. This twin character to fundamental theology in Lonergan is due to a multi-faceted approach he adopts by prizing cognitional theory as a basis for conceiving of fundamental theology as a 'functional specialty' in theology. A functional specialty is a type of task that centers on a practitioner of a discipline who is engaged in a specific set of cognitional acts, which Lonergan specifies as fourfold (or, implicitly according to some of his interpreters, fivefold).⁴⁶ For Lonergan, fundamental theology is introduced with respect to two main topics: pluralism and the use of categories. The heading he chooses to use for thinking through fundamental theology is what he terms foundations.

The cognitional act that serves as the basis for Lonergan's fundamental theology is the personal decision of the theologian. A person's conversion to a new horizon of theological purpose governs a new form of life. On the basis of this conversion, one becomes able to propose and construct a worldview. This worldview in turn determines how to explicate theological doctrine, understand those doctrines in systematic theology and then communicate the meaning of those doctrines, un-

⁴⁶ In his magisterial work *Insight*, Lonergan develops his cognitional theory in a scientific key, and then explicated it in *Method in Theology*; see B.J.F. LONERGAN, *Method in Theology*, Seabury Press, New York 1979. This cognitional theory of four levels of consciousness serves his epistemological and metaphysical infrastructure for a differentiated portrait of theology. It is chiefly with reference to *Method in Theology* that this paper focuses its attention because of Lonergan's development of fundamental theology in chapter 11 there. On the question of whether there is a fifth level of consciousness, see M. VERTIN, *Lonergan on Consciousness: Is there a Fifth Level?*, «Method: Journal of Lonergan Studies», 12/1 (Spring 1994) 1-36.

derstood systematically, in an ecclesial context. The major difference between Lonergan's expression of fundamental theology and earlier Catholic formulations in the modern period is the emphasis that he places on the conversion of the theologian:

[R]eflection on conversion can supply theology with its foundation and, indeed, with a foundation that is concrete, dynamic, personal, communal, and historical. Just as reflection on the operations of the scientist brings to light the real foundation of the science, so too reflection on the ongoing process of conversion may bring to light the real foundation of a renewed theology.⁴⁷

For some critics who are wary of Lonergan's affinity with Rahner's transcendental method, this way of thinking of fundamental theology appears equally subjective. Yet, Lonergan alludes, this definition of fundamental theology to the condition for the possibility of two types of categories, the special and the general types. These categories (like Carmody Grey's 'life' and Irenaeus' category of 'recapitulation') are notions that guide the process of doctrinal formulation, theological forms of explanation. Indeed, Lonergan's focus on conversion as the key fundamental theological element that conditions other theological tasks (or 'functional specialties' as he calls them) is an important corrective to overly rationalist accounts of theology. Lonergan is like Irenaeus in holding for the role of the heart. Whereas Irenaeus stood against the gnostic emphasis on knowledge as the means of God's revelation, Lonergan does likewise by turning away from an exclusive reliance upon the rationalistic principles of scholastic, "Handbook theology" toward the orientation of the theologian as converted by the love of God. Lonergan cites Romans 5:5: "God's love has been poured into our hearts through the Holy Spirit that has been given to us." There is an entire horizon of theological currents that are implied by Lonergan's choice to make the converted heart of the theologian a central tenet of fundamental theology. Because of the unique nature of God's love, a change occurs in the order of knowing and loving. The norm that usually declares that we do not love that which we do not know—*nihil amatum nisi praecognitum*—is actually overturned. God's love is first, acting as a precondition for any knowledge, a fact that needs to be made explicit

⁴⁷ B. LONERGAN, *Theology in Its New Context*, in *A Second Collection*, edited by W.F.J. Ryan, B.J. Tyrrell, University of Toronto Press, Toronto 1996, 67.

in the way that we carry out fundamental theology. That is, Lonergan places revelation first.

One of the implications is the sense of God's action as a saviour, a deliverer of humans because God is a God of mercy towards us. That is, the God of fundamental theology is not prior to the biblical witness due to a series of abstract attributes that God possesses in advance. The converted theologian is a person seized by God in order to do theology well. Fundamental theology cannot be a philosophy of religion with a sprinkling of biblical rhetoric to justify the philosophical landscape that serves as a map for theologians to slavishly follow. Lonergan's stipulation of a central place for the converted heart of the theologian deserves a wide hearing so that it is not understood as a way to undermine or underdetermine doctrine or systematic theology. To explicate the significance of Lonergan's point, it is profitable to consider the paradigmatic Christian conversion of Augustine.

In Augustine's account, the converted heart is the key motivating factor for his vocation as a Christian theologian of both faith and reason. Augustine interprets Paul, who writes: "If anybody thinks he knows anything, he does not yet know as he ought to know. But anyone who loves God, this man is known by him." (1Cor 8:2). Augustine comments that "Even in this case, you notice, he (Paul) did not say 'knows him,' which would be a dangerous piece of presumption, but 'is known by him.'⁴⁸ The point that Augustine highlights here is the centrality of revelation as a disclosure by God, not a human possession. Augustine has to contend with the Manichaean heresy that is premised on gnostic dualisms between mind and body that result in the valorization of knowledge at the cost of forsaking conversion of the distorted will. Augustine's conversion experience indicates a pivot point. Doing theology thereafter is marked by a new self awareness that famously pervades his thought thereafter as a long series of corrections and fresh elaborations on the knowledge that he possessed prior to his poignant moment in the garden in Milan. In the *Confessions*, Book VIII, Augustine tells of a new horizon that opens up for him as a consequence of hearing a child read Romans 13:13-14: "let us live honourably as in the day, not in revelling

⁴⁸ AUGUSTINE, *The Trinity*, Book five, Prologue 2, transl. by E. Hill O.P, New City Press, Hyde Park 1991, 270.

and drunkenness, not in debauchery and licentiousness, not in quarrelling and jealousy. Instead, put on the Lord Jesus Christ, and make no provision for the flesh, to gratify its desires.” What is crystallized in this moment begins as a reflection on the radical nature of sin and its effects on him. It is foreshadowed at the very beginning of the work when, in Book I, Augustine writes that “you have made us and drawn us to yourself, and *our heart* is restless until it rests in you.” The use of the plural “our” combined with the singular “heart” instead of hearts in the Latin is a telling linguistic sign of the fundamental theological thrust of Augustine’s confession. It is evidence for his own restlessness and eventual desire for God as well as the fact of a restlessness that is not his alone—it is a shared reality with which all human beings struggle. As the *Confessions* shows, the conversion broadens in scope to becoming a fundamental stance that then clarifies his stance on other issues. After the conversion event in Book VIII, Augustine goes over some of the immediate autobiographical features of his new life in Christ in Book IX, including his baptism and the shared vision of this new life with Monica, his mother.

But, in Book X, Augustine makes a dramatic turn from his conversion to some of the basic issues that underpin the philosophical and theological disciplines and their relation. God is now known as the “life of life” (X,6), something that resonates with Carmody Grey’s biologically focused account that I referred to earlier. In the last four books of *Confessions*, Augustine treats several pre-doctrinal *topoi* that characterise Christianity’s relationship with neo-platonism, such as the soul, its relationship to the body as well as memory. The focus on memory can be seen as the development of a fundamental theological category in response to platonic theories of recollection. Book X ends with reflections on sin, the vices of pride and lust as well as various derived temptations. These reflections establish a kind of prolegomena for considering the need for redemption in the form of Christ, the mediator. Remarkably, Augustine turns, in Book XI of *Confessions*, to the beginning, to the creation of the world and the biblical text as the source of truth about the world, its temporality, distinction from eternity and other basic ontological features. Augustine seeks to know the “nature of time” among other elements of the created universe.⁴⁹

⁴⁹ IDEM, *Confessions*, XI, 30.

This excursus into the structure of Augustine's *Confessions* is a useful way to foreground what Lonergan is doing in his modern classic, *Method in Theology*. The reason for this claim, as I have tried to show here, is that the place of conversion, while it builds on a store of knowledge that precedes it, is nevertheless a new way of perceiving reality. Once the conversion is understood as a radical shift in personal horizon, then reality needs to be reappraised in the light of that conversion. The question that governs Lonergan's appreciation of fundamental theology is how conversion serves a theological method that is recognizably organized and structured. There are several aspects of Lonergan's methodical approach that need to be highlighted so that his notion of 'foundations', which I deem to be equivalent to fundamental theology, is properly understood. For Lonergan, conversion for a theologian is differentiated. It proceeds in ways that are firstly religious but also moral and intellectual. As we have seen in the example from Augustine's *Confessions*, the fusion of the moral with the religious is abundantly clear in the garden in Milan, or at least, in Augustine's recounting of that event. But what is also clear is that following on from his properly religious conversion to Christianity, there are intellectual entailments for Augustine that can be seen in his dialectical encounters in the decades following. In summary, the role of conversion in directing Lonergan's notion of foundations is not limited to a narrow religious conception of it. Rather, like Augustine, it is filtered through other important moral and intellectual dimensions. Thus, Lonergan's priority of conversion is fully consistent with an Augustinian theological method.

For Lonergan, foundations are for the last three functional specialties in theology especially. Fundamental theology is thus only one of eight types of theological task. Ideally, theologians are organized not according to the different sources of theology but according to the activities in which they are engaged. The eight functional specialties are found in either the first 'mediating' theology of research, interpretation, history and dialectic or the second 'mediated' theology of foundations, doctrine, systematic theology and communications. Foundations sets the parameters for theology that is carried out in the final three functional specialties, none of which can be reduced to being a set of premises, deductively powering the rest of the theological enterprise. However, foundations can certainly encompass the employment of premises. Foundations is,

for Lonergan, “the immanent and operative set of norms that guides each step forward in the process.”⁵⁰ Thus, it is not a simple, logical pre-supposition per se.

One essential feature of Lonergan’s theological method is that different functional specialties are correlated with particular cognitive operations or acts. Foundations, like dialectic, is operative at the level of decision. Thus, the nature of foundations, while never arbitrary, is subjective and personal. For Lonergan, human consciousness can be distinguished according to four levels, beginning with the level of experience (correlated to the tasks of research and communications respectively), understanding (correlated to the tasks of interpretation and systematics respectively), judgment (correlated to the tasks of history and doctrine respectively) and decision (correlated to the tasks of dialectics and foundations respectively). The foil against which Lonergan argues is what is known in Catholic theology as ‘Denzinger theology’ a reference to the set of manuals that were first published in 1854 by Heinrich Joseph Denzinger under the title *Enchiridion Symbolorum et Definitionum*. This anthology of conciliar decrees lists propositions, definitions and condemned propositions. It is historical in the limited sense of laying out doctrinal touchpoints in the tradition. But as a set of foundations upon which to *do* theology, it is deficient according to Lonergan. It does not elaborate on the necessary or sufficient conditions for a theologian to practice in the guild where different exigencies impress themselves on the theologian according to the needs of various realms of meaning, including those of common sense, theory, interiority and transcendence. Thus, on a Denzinger model, theology remains flat and static, not dynamic. The problem with a fundamental theology conceived along those lines is that it gives the impression of a system that rests on a deduction of logical first principles to a series of practices.

Lonergan does not abandon in any way the rational or intelligible components of fundamental theology, building as it does on the experience, texts, interpretations and history and the rational deliberation that is entailed in those theological components. But Lonergan knows, with Augustine, that the rational or strictly cognitive exigency of theology is complementary to how meaning is manifest in ways that are efficient,

⁵⁰ LONERGAN, *Method in Theology*, 253.

constitutive and communicative. That is, for Lonergan, meaning is built up in aggregates across communities and history.⁵¹ This suggests that fundamental theology is rooted in categories that alter, depending on the exigencies of the theologian and the church at different periods in history. Augustine, for instance, drew on his conversion, triggered by morally laden memories, in order to attain a new foundation or horizon for living, which was anchored in the Incarnation, God's entrance into history and the significance of the human body. These categories are occasioned by the particular dialectical exchanges that Augustine waged against dualist, Manichaean renderings of divine attributes, human nature and the characterization of wisdom. But these categories are also necessary for elaborating on doctrine well. From these categories, Augustine was able to arrive at the *totus Christus*, a way of relating Christ and the church as analogous to the head and the body of Christ. What this web of categories do, at the level of fundamental theology, is to unite the specific doctrines that are taught by the church and theological authorities. The unifying role of fundamental theology is paramount.

Lonergan's emphasis on personal conversion that motivates the creation and use of theological categories *appears* to convey a radical theological pluralism in contrast to the unified fundamental theology of the past. However, the unity of historic fundamental theology in the Catholic tradition is sometimes less effective despite the alleged objectivity. Lonergan alludes to Melchior Cano's *De locis theologicis* which commended the direct study of all sources. But, as Lonergan says:

The Scholastic aim of reconciling all the elements in its Christian inheritance had one grave defect. It was content with a logically and metaphysically satisfying reconciliation. It did not realize how much of the multiplicity in the inheritance constituted not a logical or metaphysical problem but basically a historical problem.⁵²

Unlike other fundamental theologians however, Lonergan does not discard the metaphysics of nature from his theological method, even though his theological aim is largely cast in terms of ensuring that historical development is enshrined within Christian theology. The categories of Lonergan's fundamental theology are not divided conceptually between

⁵¹ *Ibidem*, 76.

⁵² *Ibidem*, 262.

those that are oriented to nature and those that are oriented to history. For Lonergan, the fundamental distinction is between general and special categories, each of which can apply to *both* nature and history.

General categories are those that are transcultural, that is, not the product of any one culture but are the products of what Lonergan refers to as ‘authentic subjectivity’, the fruits of which are objectivity. An authentic subject is one who is self-transcending. Self-transcendence is the description of a structure of knowing through the differentiated consciousness of operative levels: one attends, inquires, reflects and deliberates. For Lonergan, it is necessary for fundamental theology to proceed from this epistemological base.

Special categories are oriented around a methodical theology, not a theoretical theology. These are derived firstly from religious experience, a capacious notion that Lonergan expounds on at various points in his later work. From there, Lonergan moves to thinking about what is derived from considering salvation history, the beatific vision, the purification of elements within Christianity and how they contribute to the redemption of what is perpetually subject to progress and decline in history. In summary, Lonergan lays out a theological method that includes in summary form a fundamental theology, termed foundations, that is rooted in an Augustinian notion of conversion and which results in the presence of categories into which doctrinal explanations are enfolded. While not influential in the details, Lonergan’s notion of theological foundations provides a major precedent for a fundamental theology that is attached to nature and science without abandoning the historical thrust of twentieth century Catholic theology.

V. JOSEPH RATZINGER AND THE *LOGOS*

Sometimes referred to as an existential Thomist or a reforming Augustinian, Joseph Ratzinger’s theology is, in part, a development of fundamental theology that has had a strong influence in contemporary Catholic thought. Many of the themes in his theological thinking have received expression in the papal teaching that he provided in his years as Pope, between 2005-2013. Ratzinger’s engagement with the sciences has been a notable theme in his

thought, and references can be found in a number of his writings that deal with fundamental theology.⁵³

One of the most important themes in Ratzinger's theology is the *historiographical* reading of science and its place in the history of western thought. His understanding of the distinctive interpretations of Descartes, Vico, Kant and Hegel makes for a masterful view of the foundational assumptions that support the natural sciences. His account of the thought of Auguste Comte and Francis Bacon are illustrative analyses of how the relationship between science and technology is construed, the world of human making. In one essay, he notes that Bacon "disavows the question of truth as the old, outmoded question and transforms it into the question of know-how, the question about power."⁵⁴ In his *Introduction to Christianity*, one of Ratzinger's most cited works, he spends quite some time in reviewing the various ramifications of Comte's theory of transitions from a theological to a metaphysical to a scientific stage of human civilization. As with his treatment of epistemological issues in general, Ratzinger deals with the historiographical nature of Comte's theory on its own terms by allowing Christianity to be the measure of Comte's three historical stages. For instance, it does not depend on the myths of Comte's first religious stage of human history, "Christianity's precedents and its inner groundwork lie in philosophical enlightenment, not in religions."⁵⁵

Where Ratzinger is particularly strong in his grasp of the sciences and their impact on contemporary society, is regarding the alleged relationship between science and atheism. Early in his career, in the context of an assessment of positivism, he remarks that "with the breakthroughs made by Planck, Heisenberg, and Einstein, the sciences were once again on their way to God. The anti-religious orientation that had reached its climax with Haeckel

⁵³ Notably cited in this context is the essay published in English under the title *In the Beginning...: A Catholic Understanding of the Story of Creation and the Fall*, Eerdmans, Grand Rapids 1990.

⁵⁴ J. RATZINGER, *Fundamental Speeches from Five Decades*, Ignatius, San Francisco 2012, 180.

⁵⁵ J. RATZINGER, *Truth and Tolerance: Christian Belief and World Religions*, Ignatius, San Francisco 2004, 169.

had now been broken, and this gave us new hope.”⁵⁶ Instead of casting nature and history as two disparate sources or meta-categories in a theology of revelation, he brings them together. This combined way of thinking allows Ratzinger to provide a broader account than is commonly available in a natural theology. In fact, his approach is consistent with a theology that is connected to a fulsome blending of natural philosophy and an interpretation of politics, culture, social trends and world history.

This is the tradition of the dialogue between faith and reason, in the pattern of St. Augustine, who addressed all these areas in his many occasional writings as well as in his well known syntheses. Ratzinger himself deals with the question in a dialogue with key intellectuals of his own era, such as the philosopher Robert Spaemann. As summarised by Christian Schaller, “In Christian faith, reason emerges precisely because faith strives for reason. And in reason, Christian faith emerges because faith is the specific locus of reason and reasonableness.”⁵⁷ Faith is the condition for the possibility of reason. So, as an expression of human thought on the basis of faith, reason is subject to a form of (recursive) theological analysis. The connection to Spaemann is instructive for showing how reason functions as the prime category of fundamental theology for Ratzinger, since Spaemann’s own scholarly career dealt in large part with Marxist materialism. That ideology, possibly more than every other political ideology, is constructed on the basis of a reductionist interpretation of science and nature, the creed that matter is all there is. In his own lifelong engagement with Marxism, including his clash with liberation theology, Ratzinger bears witness to the interpretation of science and nature that served as part of his diagnosis of the widespread political reductionism of human needs to the economic

⁵⁶ J. RATZINGER, *Milestones. Memoirs 1927-1977*, Ignatius, San Francisco 1998, 42-3. As Euclides Eslava notes in *Auguste Comte: Science, Reason, and Religion* (in JOSEPH RATZINGER, *Dialogue with Philosophical Traditions: From Plato to Vattimo*, edited by A. Sada, T. Rowland, R. Albino de Assunção, T&T Clark, London 2024, 118-132), Ratzinger drew from Henri de Lubac’s interpretation of atheism and its complex relationship to the sciences. See H. de Lubac’s *The Drama of Atheist Humanism*, Ignatius, San Francisco 1995.

⁵⁷ C. SCHALLER, *Robert Spaemann: Person, Ethics, and Politics*, in A. SADA, T. ROWLAND, R. ALBINO DE ASSUNÇÃO (eds.), *Joseph Ratzinger in Dialogue with Philosophical Traditions: From Plato to Vattimo*, T&T Clark, London 2024, 328-335, 330.

type of needs. Rowland diagnoses it accurately as a critique of Marx not for explicit theological reasons but for reasons that strike him as lying at the heart of the foundations on which theology draws: “Ratzinger obviously regards Marx’s atheism as problematic. It is however Marx’s attitude to truth, rather than his attitude to the God of Christianity who is the source of all truth, that dominates Ratzinger’s criticism of Marxist thinking.”⁵⁸

The key to Ratzinger’s diagnosis is the problem of science becoming captive to philosophical positivism, a theme which is present in Tanzella-Nitti’s writings too, concerning the role of interpretative acts. Against positivism in philosophy and science, both Ratzinger and Tanzella-Nitti cite the role of interpretation and interdisciplinary forms of cognition as truth oriented. Yet science has become a breeding ground for the growth of positivism in modernity: “Where positivist reason dominates the field to the exclusion of all else – and that is broadly the case in our public mindset – then the classical sources of knowledge for ethics and law are excluded.”⁵⁹ This tendency toward positivism in science is internal to the act of understanding the practice of science. The adoption of positivism certainly lies in tension with the straightforward desire to see in science a vantage point for general revelation. But more basically, it is contrary to the spirit of science as open inquiry into the truth. Additionally, as Ratzinger notes, when a positivist approach to science is the dominant approach, then how may we trust the reports and interpretation of nature that emanate from the scientific disciplines for this important theological purpose?

Ratzinger discusses the idea that science functions as internal to Christian revelation because of the important impact of the separation of facts from values. This separation was most prominently announced by the British philosopher, G.E. Moore, the separation of ‘is’ from ‘ought’. Ratzinger diagnoses the dysfunction of this separation as regressive because of the negative impact on the concept of the natural

⁵⁸ T. ROWLAND, *Karl Marx and Marxism: The Problem of the Priority of Praxis*, in SADA, ROWLAND, R.A. DE ASSUNÇÃO (eds.), *Joseph Ratzinger in Dialogue with Philosophical Traditions*, 133-147, 134.

⁵⁹ *The Listening Heart: Reflections on the Foundations of Law*, visit to the Bundestag, Address of his Holiness Benedict XVI, September 22, 2011.

law. According to Ratzinger, natural law needs to be retrieved for the purpose of supporting moral reasoning with a metaphysical account of nature. This is only possible if positivism about nature and scientific reasoning is overturned.

The centrality of intelligibility is a guiding notion for both theology and the sciences and this is evident in many areas of Ratzinger's thought.⁶⁰ As mentioned already in the context of his view of Comte's positivism, for Ratzinger, the role of philosophy is *internal* to Christian theology, and this suggests its animation of fundamental theology. This is evident in his campaign against dehellenization for instance, his rejection of the view that Christian thought can flourish without Greek inspired metaphysics.

But the Logos is the central Christian insight into the provision of reason as a key characteristic of the world. For Ratzinger, reason is not a realm that is separate from revelation or an aspect of human curiosity that is intended to be satisfied *apart* from God's creative and salvific intentions. For him, reason is a reality that lies at the heart of God's very being. So, as he stated in his now famous Regensburg address of 2012, "[n]ot to act reasonably, not to act with *logos*, is contrary to the nature of God."⁶¹ This comment was received negatively because of the historical context that he referred to, namely the Byzantine emperor Manuel II Paleologus' negative assessment of the apparent lack of reason embedded in the Islamic concept of God and divine action. In contrast to all such depictions of God, whether Muslim or Christian occasionalism and voluntarism, Ratzinger cites the reasonableness of God's action. The way that Ratzinger endeavours to make this claim count is with reference to the necessity of Hellenic thought in Christian theology. Against the program of 'dehellenization' of Christian revelation, led by Adolf von Harnack in the early years of the 20th century and continued by German biblical scholars such as Rudolf Bultmann, Ratzinger outlines an alternative. He buttresses the claim that reason is

⁶⁰ This paper will continue to refer to the late Pope by his surname, by which most of his original theological work was written.

⁶¹ BENEDICT XVI, *Faith, Reason and the University—Memories and Reflections*, Meeting with the representatives of science, Aula Magna of the University of Regensburg, September 12, 2006.

inherent to God's being with the claim that reason, understood through the *Logos*, is also inherent to faith:

it is often said nowadays that the synthesis with Hellenism achieved in the early Church was an initial inculturation which ought not to be binding on other cultures [...] This thesis is not simply false, but it is coarse and lacking in precision. The New Testament was written in Greek and bears the imprint of the Greek spirit [...] the fundamental decisions made about the relationship between faith and the use of human reason are part of the faith itself.⁶²

Ratzinger's contribution has frequently been described as an Augustinian voice in the rapprochement of faith and reason. While this is true, Ratzinger also acknowledges the contributions of medieval and a specifically Thomist framework for positing the *Logos*. Although he does so infrequently, Ratzinger argues for the role of an analogy between God and nature. For example,

the faith of the Church has always insisted that between God and us, between his eternal Creator Spirit and our created reason there exists a real analogy, in which unlikeness remains infinitely greater than likeness, yet not to the point of abolishing analogy and its language (cf. Lateran Council IV).

Thus, the *Logos* is not only conceived as a Greek vehicle for the message of the gospel, it is at the heart of a broad metaphysical framework, such as that provided by the doctrine of analogy. The *Logos*, moreover, is that principle that underpins the common ground that unites otherwise diverse historical periods and texts. In a lecture in 2008, Ratzinger points to the centrality of interpretive exegesis for scripture to have the capacity to inspire. As such, exegesis brings forth the intelligibility of Christian faith: "Christianity does not simply represent a religion of the book in the classical sense (cf. par. 108). It perceives in the words *the Word*, the *Logos* itself, which spreads its mystery through this multiplicity and the reality of a human history."⁶³ In this instance, Ratzinger refers to historical context because of the theology of scripture that he is advocating. But this does not mean, as we shall see below, that he is unaware of the world of science and nature as equally receptive to the presence of the *Logos*.

⁶² *Ibidem*.

⁶³ *Meetings with Representatives from the World of Culture*, address of His Holiness Benedict XVI, Collège des Bernardins, Paris, September 12, 2008.

Tanzella Nitti adds to this theology of the *Logos* by noting that in modernity, there has been a transferral of authority and intelligibility away from nature and towards history. He writes: “A remarkable change of perspective occurs with the rise of German idealist romanticism. Many contents associated with the concept of nature shift into the concept of *history* [...] In this view the true way of looking at nature is history and nature itself is a history.”⁶⁴ This is a key insight that resolves many of the problems associated with a fundamental theology that is too exclusively concerned with the category of history. For Tanzella-Nitti, this fusion of interpretive horizons is made possible through a recourse to the metaphor of the two books. This metaphor is about the book of nature and the book of scripture as two ways to become aware of God’s revelation. He prefaces this discussion by citing Ratzinger on the legibility of the cosmos, an “ordered book.”⁶⁵ But where, for Tanzella-Nitti, the question is how to account for a theology of revelation, for Ratzinger, it is the foundational concept of the *Logos* that underpins faith and science.

In *Introduction to Christianity*, Ratzinger cites the prominence of the *logos* as something that comes about as the result of a decision, where it contrasts with “mere matter.”⁶⁶ The *logos* is capacious, inclusive of several vital components of theological subject matter. It denotes the idea that “all being is a product of thought and [...] in its innermost structure is itself thought.” To decide for the *logos* means to act in faith and this faith is for truth, and “being itself is truth, comprehensibility, meaning [...] the belief in creation.”⁶⁷ It is striking that the discussion of the *logos* in this work of Ratzinger’s includes praise for mathematics, a citation of Einstein’s encomium for the laws of nature, testimony to the structured intelligence in matter and in being. From this vantage point, it is but a short hop to the consideration of a world in which these very same laws of nature figure in the depiction of a world that is also beautiful. Ratzinger cites the complex biological system of pollination, the symbiotic relationship between bees and tree blossoms. Matter points beyond itself but this conclusion is paralleled by an equally sceptical

⁶⁴ TANZELLA-NITTI (2022), 193.

⁶⁵ See POPE BENEDICT XVI, *Discourse to the Pontifical Academy of the Sciences*, October 31, 2008.

⁶⁶ *Introduction to Christianity*, Crossroad, New York 1986, 105.

⁶⁷ *Ibidem*, 106.

consideration of idealism as a philosophical option for determining how we understand the world. Ratzinger uses the category of being-thought as a way of linking the *logos* concept to the history of secular philosophy. In making this link, he also considers metaphysical coherence as a problem in history. What to make of all the different schools of thought that have philosophized in different directions about the way that the universe appears to be ordered? In a way that is unique among his theological peers, Ratzinger considers seriously both the strictly natural, scientific ways of construing nature alongside the historical forms in which such construals have been expressed. This ability to consider both the natural and historical elements is testimony to his adaptive and flexible frame of thought. He does not fuse nature with history.

As a result of his considerations of nature and history stands Ratzinger's commitment to the personal God. The category of person sits easily alongside that of the *logos* as the entailment of it. The personal meaning of the created universe contrasts with the impersonal, anonymous God of the philosophers for whom some sort of necessity is an ontological requirement. Rather, the freedom of the Christian God to create, redeem and provide is what is entailed. For Ratzinger, the importance of the *Logos* concept is philosophically important for it means something very different than idealism, a way of pointing to consciousness at the foundation of being.⁶⁸ But in the context of his broader theological program, there is another, more urgent implication. That is the anticipation of divine revelation. The *logos* concept is unique for its ability to straddle the basic categories of theology and the two basic forms of theological inquiry. First, it supports both the categories of nature and history as we have already seen. It speaks to both the intelligibility that is sought in scientific contexts and it identifies an underlying order in history as well. Second, it is significant because it serves to mediate natural theology and a theology of revelation, which are the two basic forms of theology in the Catholic tradition. The notion of *logos* takes from nature its origins and purpose a structure for developing a specifically Christian language of creation. It maps out redemption also, in light of a distinctive natural theology that is fulfilled in a faith in Jesus Christ. The trajectory that is indicated from one form of theology to the

⁶⁸ *Ibidem*, 111.

other form of theology is expressed by Ratzinger as the trajectory from the *logos* to the reality of the personal God. As he puts it, “the *logos* is a person and therefore faith is the option in favour of the primacy of the particular over the universal.”⁶⁹

The transposition from natural theology to revealed theology cannot stand unless a transfer of intentional categories has taken place that are anticipated by the *logos* and made manifest in the personal. Ratzinger indicates this transposition by speaking about love. Echoing Augustine’s saying that one cannot know what one does not love, Ratzinger determines that the creative thinking about the being of the universe “not only knows but loves; that it is creative because it is love; and that because it can love as well as think it has given its thought the freedom of its own existence, objectivized it, released it into self-being.”⁷⁰ For freedom, not cosmic necessity is, as he goes on to say, “the supreme factor in the world”, a metaphysical set of guiding assumptions and insights are thus aligned to give meaning to both creation and redemption as part of a greater whole. As a consequence, we come to appreciate the intelligibility of systematic concepts such as that of ‘recapitulation’ from Irenaeus. That category, for wholly apologetic reasons, unites the action of creation with the action of redemption, in order to counter the gnostics. Ratzinger, like Irenaeus, develops a bridge from the intelligibility of creation to the intelligibility of redemption without resorting to dualism. Like the apologetics literature of old, and in concurrence with Tanzella-Nitti’s own contribution, Ratzinger shows how faith arises from a consideration of nature *and* history, even these realities understood from a predominantly secular perspective.

God, the object of faith, then becomes a condition of the possibility for doing science, for studying nature and seeing in *it* implicitly a general form of the revelation that is announced explicitly in the historical figure of Jesus Christ. For Ratzinger and Tanzella-Nitti, given that both appreciate the scientific context in which categories like nature and history are meaningful, sin and evil must also be anticipated. This is a strict consequence of the fact that freedom entails multiple potential outcomes of events, what Ratzinger refers to as reality’s ‘incalculability’.

⁶⁹ *Ibidem*, 111.

⁷⁰ *Ibidem*, 112.

For Ratzinger, the mediation of history in ontology is the key problem for fundamental theology.⁷¹ But, as I say, nature is developed as a distinct theme of fundamental theology, and it is not fused with history in such an effort. The clear advantage of Ratzinger's understanding of fundamental theology is the way that he brings forward the Christological as well as the natural and rational dimensions that are present in the tradition's notion of the *Logos* for the purpose of settling the horizon of Christian thinking, of Christian doctrine. The fusion here is not of nature and history but a fusion of the general and special categories that are still separated in the theological method of Lonergan. It makes good on the reasonable character of nature in ways that Rahner's theology cannot deliver beyond its existentialist form of expression. The *Logos* also fulfills the diversity of genres that are left disunited in the natural / scientific theology of Alister McGrath.

VI. CONCLUSION

This paper has argued that fresh perspectives from contemporary theologians can help fulfill the mission and scope of fundamental theology as it was originally designed in the light of more ancient apologetical, doctrinal and philosophical forms of theology. Without abandoning the category of history, we now have tangible examples of an engagement with nature that may animate the theological guild to deliberate on how to interpret nature in a post-positivist paradigm. As I have shown, the *Logos* theology of Joseph Ratzinger is best situated to provide the kind of scope that is required and the work of Giuseppe Tanzella-Nitti shows how the specific contours of this theological program might progress.

Despite the modern turn to history, we now see a convergence of fundamental theological concern for historical subjectivity alongside a realization of the enduring authority of nature and the metaphysical panorama that was previously taken for granted by pre-modern theologians. The modern genre of fundamental theology was set in motion by modern theologians who saw that a unified theological project must heal the breach between scripture and doctrine. This effort was patchwork, seen most notably among adherents of new ways of thinking like the Tübingen school, represented by figures such as Johann Sebastian

⁷¹ J. RATZINGER, *Principles of Catholic Theology*, Ignatius Press, San Francisco 1987.

Drey. In light of the theological turn to historical subjectivity, evident in its reception in the theological instincts of Karl Rahner in particular, there emerged, quite unintentionally in some respects, a dualism that opened up between nature and history and culture, as an unspoken presupposition for Catholic theology.

This implicit dualism between nature and culture is breaking down as the third form of fundamental theology begins to emerge in the writing of those like Tanzella-Nitti. From the point of view of a fundamental theology that is informed by science, there are important developments taking place within biology, the philosophy of science and theological anthropology that wholeheartedly support this enterprise. One of these is the growth in attention to the extended evolutionary synthesis, an empirical way in which evolutionary mechanisms are framed in conjunction with culture. In his book *Signs in the Dust: A Theory of Natural Culture and Cultural Nature*, Nathan Lyons offers “an account of cultural meaning that is at home in natural materiality.”⁷² There is also the ongoing debates over the origins and even the definition of life. As Mariusz Tabaczek sees it, there is an ongoing debate that entails revisiting the fourfold causation of Aristotelian philosophy in assessing the debates over life and its necessary or sufficient elements.⁷³ It marks the return of a philosophy of organism, which not only goes beyond the reductionism of neo-Darwinian biology but also establishes a new way to think about the interrelatedness of different causes. A number of important fundamental insights into the nature of nature are interwoven in such debates. These insights were unavailable until recently because the exchange between faith and science had not taken shape yet. The organismic view of life is tied up with the vivid teleology of the Christian view of creation. New interpretations of creaturely life, such as that by Dennis Noble, on the problems of understanding life exclusively in terms of mechanical genetic causation, are plausible ways for a fundamental theology to again appropriate theories from the philosophy of nature in order to develop categories

⁷² N. LYONS, *Signs in the Dust: A Theory of Natural Culture and Cultural Nature*, Oxford University Press, Oxford 2019, 3.

⁷³ See M. TABACZEK, *Aristotelian-Thomistic Contribution to the Contemporary Studies on Biological Life and Its Origin*, «Religions» 14/2 (2023) 214; <https://doi.org/10.3390/rel14020214>.

to frame the doctrine of creation.⁷⁴

It is very positive from the point of view of fundamental theology that these new, reinterpretations of science and nature are occurring now. They give impetus to the recasting of fundamental theology that has been underway for some time. Nascent within the systems and engagements with science and nature in the work of Rahner and Lonergan, the return of a fundamental theology that springs from nature and science is now indicated by the work of Tanzella-Nitti in a fresh way. This allows for another reinterpretation, which is the reinterpretation of the work of our contemporaries in the science-theology dialogue, like McGrath and Grey, whose appreciation for the realities of (Augustinian) conversion and a unified theological discourse could come to fruition. In these exciting intellectual contexts, a renewed Catholic fundamental theology has much to offer and much to learn.

⁷⁴ See D. NOBLE, *The Music of Life: Biology Beyond the Genome*, Oxford University Press, Oxford 2006.

STUDI

SCIENCE-MEDIATED NATURAL THEOLOGY: UNRAVELING THE BURDEN OF PROOF

JAVIER SÁNCHEZ-CAÑIZARES

University of Navarra. “Mind-Brain Group” at the Institute
for Culture and Society (ICS) and “Science, Reason and Faith” Group (CRYF), Spain

ABSTRACT: The burgeoning field of science and religion has only partially inherited the natural theology of old. Whereas the latter has had to undergo painful updating, the former covers a broader spectrum of topics. However, the challenge of understanding God through natural means remains a central theme in this enduring dialogue. This paper seeks to resume the classical understanding of natural theology within the context of modern science, highlighting opportunities that the scientific worldview offers for enhancing our access to the divine. In this endeavor, a perennial risk lies in claiming to have reached God too hastily. To avoid that temptation, I will discuss when and why one may transition from an epistemic conundrum to an ontological claim in a scientific context. More specifically, I will argue for the critical role of philosophy from science, not of science, as the ingredient ‘sine qua non’ to carry out said transitioning.

KEYWORDS: Science and Religion, Natural Theology, Knowledge of God, Ontological Pluralism, Epistemic Singularities.

RIASSUNTO: I recenti studi di scienza e religione hanno ereditato solo in parte la teologia naturale di un tempo. Mentre quest’ultima ha dovuto subire un doloroso aggiornamento, i primi coprono un più ampio spettro di argomenti. Tuttavia, la sfida di comprendere Dio attraverso mediazioni naturali rimane un tema centrale di questo dialogo. Questo articolo cerca di riprendere la comprensione classica della teologia naturale nel contesto della scienza moderna, evidenziando le opportunità che la visione scientifica del mondo offre per migliorare il nostro accesso al divino. In questo sforzo, un rischio perenne è quello di affermare di aver raggiunto Dio troppo frettolosamente. Per evitare questa tentazione, discuterò quando e perché si può passare da una questione epistemica a un’affermazione ontologica in un contesto scientifico. Più specificamente, sosterrò il ruolo critico della filosofia dalla scienza, non della scienza, come ingrediente *sine qua non* per effettuare tale transizione.

PAROLE CHIAVE: Scienza e religione, Teologia naturale, Conoscenza di Dio, Pluralismo ontologico, Singularità epistemiche.

SUMMARY: I. *Introduction*. II. *The Toils of Natural Theology*. III. *Opportunities in Physics for Natural Theology*. 1. The Big Bang Theory and the Doctrine of Creation. 2. Quantum Mechanics and the Problem of Determination in Nature. 3. The Mind-Brain Problem and the Unity of Complex Dynamical Systems. IV. *How to Relate Science and Theology: what Counts as a Scientific Explanation?* V. *Assumptions Behind Scientific Theories and Models: Making Explicit the Implicit*. VI. *From Epistemic to Ontological Emergence*. VII. *Conclusive Remarks*.

I. INTRODUCTION

Almost a decade ago, the late Pope Benedict XVI sounded the alarm regarding the problems of Catholic theology in the present era. Interviewed in his retirement by a journalist, Peter Seewald, who would become his biographer, the journalist addressed the following question to the pope:

The question which concerns us anew time and time again is: where is this God, actually, of whom we speak, from whom we hope for help? How and where can one locate Him? We now see further out into the universe [...], but as far as we can see now, nowhere is there anything that can be thought of as remotely like heaven, where God is supposedly enthroned.¹

At the end of a book composed of many questions and answers and dealing with different topics, the big question for believers and nonbelievers resurfaced again, as it could not be otherwise. If man is a being for God, he cannot but look for Him on any occasion, even after a relaxed session with a former pope.

Benedict XVI's answer inspires much of this contribution in honor of Prof. Tanzella-Nitti, who continually endeavored to respect the double relationship between faith and reason in his theological writings. Nonetheless, if we pay heed to the former pope's answer, one may as well wonder if theology as such has been able to come to terms with Ratzinger's implicit challenge in his answer:

Yes, because there is not something, a place, where He sits. God Himself is the place beyond all places. If you look into the world, you do not see heaven, but you see traces of God everywhere. In the structure of matter, in all the rationality of reality [...]. You must completely do away with these old spatial notions, as they really do not work any more. Because the all is certainly not infinite in the strict sense of the word, although it is so vast that we humans may refer to

¹ BENEDICT XVI, P. SEEWALD, *Last Testament: In His Own Words*, Bloomsbury, London 2016, 237-238.

it as infinite. And God cannot be found in some place inside or outside; rather, His presence is something wholly other.

It is very important that we renew our thinking in many respects, completely clear away these spatial things, and grasp matters afresh [...]. Here *theology still has to go thoroughly to work and provide human beings with conceptual possibilities again. Here the translation of theology and faith into the language of today has tremendous lacunae. Here there is much to do; to bring forth new conceptual schemes, and to help human beings to understand today that they are not to look for God in any kind of place.*²

It is beyond the scope of this contribution to explain why theology has turned a blind eye when confronted with this challenge. Briefly stated, whereas theology is called to combine both wings of the human spirit,³ it has yet decided to live either on the shore of explicating parenetical faith for believers or on the shore of critical reason in textual criticism. Despite some glaring exceptions, theology has decided to abandon any attempt to provide a language respectful of the scientific framework that might help the *intellectus quaerens fidem*, not to mention any new representations for the *fides quaerens intellectum*.⁴ One may perceive some tiredness in theology and its withdrawal towards the realm of spiritual theology. Even if the latter could provide links with psychology, the natural sciences remain as not entirely trustful companions, i.e., as uncharted theological territory.

Remarkably, the most recent attempts to start a dialogue between science and religion at the time of writing have arisen from the scientific field.⁵ Though based on good intentions, whether said attempts are successful is a different story.⁶ One could even hesitate that such attempts deserve the qualification of theological. Nevertheless, they unquestionably speak the most influential language of today, namely, scientific language, and have become extensively read and criticized. Part of this contribution

² *Ibidem*, 238. The italics are mine.

³ Cfr. JOHN PAUL II, *Encyclical Letter Fides et ratio*, September 14, 1998, «Acta Apostolicae Sedis» 91 (1999) 5-88, no. 1.

⁴ Cfr. J. SÁNCHEZ-CANIZARES, *La purificación de las representaciones en el diálogo entre ciencia y fe*, «Estudios Filosóficos» LXXII (2023) 49-65.

⁵ Cfr. M.-Y. BOLLORÉ, O. BONNASSIES, *Dieu, la science, les preuves – L'aube d'une révolution*, Guy Trédaniel, Paris 2021; J.C. GONZÁLEZ HURTADO, *Nuevas evidencias científicas de la existencia de Dios*, Voz de papel, Madrid 2023.

⁶ Cfr. J. SÁNCHEZ-CANIZARES, *Recensión de "Dios, la ciencia, las pruebas: el albor de una revolución"*, «Scripta Theologica» 56/1 (2024) 235-239.

will also criticize those books and endeavor to improve their intentions, but one must also credit them for taking the bull by the horns.

A typical approach in theology regarding science is to define the field of play and state what science can (or cannot) do. Usually, theologians deem the object of science limited by its materiality and measurability. In my opinion, these are two of the biggest misunderstandings of science made up by believers of “lazy faith”⁷ who do not care to confront the universal goal of scientific knowledge. In simpler words, the unapologetic character of recent theology has become “an-apologetic,” i.e., neglect of how current science speaks of the world and neglect of the effort to find a common framework respectful of how the world is and becomes. Unlike the upshot of early Christians’ message in the ancient world, who could not refer to Moses and the prophets when talking to non-Jews,⁸ the current Christian message is not only misunderstood but merely not understood by unbelievers, as it cannot be made coherent with what we know about the universe.

The problem can only be alluded to in this contribution. However, there is something I can do here: I can illustrate the most promising topics for theology to engage in a serious and honest discussion with science, mainly physics, and, at the same time, show why there seems to be so little gain in this confrontation (Section 3). In the second part of the paper, I will follow a different strategy for the dialogue by tackling the thorny issue of epistemology: to showcase what counts a scientific explanation and why that is so (Section 4); to reveal the assumptions hidden behind theories and models in contemporary science (Section 5); and to make a proposal about when and why we should be allowed to make the jump from epistemology to ontology, providing new insights for theology from science (Section 6), namely, a science-mediated natural theology, before reaching my concluding remarks (Section 7). However, before dealing with such topics, one needs to introduce a quick view of the problems of contemporary natural theology (Section 2).

⁷ Cfr. S. COLLADO, *La religión en la ciencia contemporánea: impertinencias e inspiración*, «Scientia et Fides» 1/1 (2013) 63-85.

⁸ Cfr. JOHN PAUL II, *Fides et ratio*, no. 36; J. SÁNCHEZ-CANIZARES, *La revelación de Dios en la creación: las referencias patrísticas a Hch 17,16-34*, Edusc, Roma 2006.

II. THE TOILS OF NATURAL THEOLOGY

Alister McGrath, one of the most renowned authors in the field of science and religion, has recently presented six different approaches to natural theology, focusing on the Western tradition.⁹ His first two approaches consider natural theology a branch of philosophy that investigates what human reason unaided by revelation can tell us concerning God (case 1) or about the existence of God on the grounds of the regularity and complexity of the natural world (case 2).¹⁰ What differentiates these cases is whether one proceeds from pure reason or engagement with the world of nature, in a renewed version of 18th-century physico-theology. Through both approaches, one would aim to avoid the “scandal of particularity” inherent to a historical revelation.¹¹

The four remaining approaches refer to the natural tendency of the human mind to desire or be inclined toward God (case 3), the analogy or intellectual resonance between the human experience of nature and the Christian gospel (case 4), the deficiency of the “naturalist” accounts of the natural world to give a comprehensive and coherent interpretation of the natural order (case 5), and, lastly, a theology of nature, namely a specifically Christian understanding of the natural world as a development of a theology of creation (case 6).¹² It is not difficult to see that all these approaches are interconnected and, consequently, McGrath aims to unify them within a “Grand Theory” or metanarrative which creates space for these diverse notions of natural theology.¹³

In my opinion, such classification helps us understand what the starting point and emphasis in each of these approaches might be. I would like, however, to proceed with a “change of basis” in what one may dub the “vector space of McGrath’s natural theologies.” A change of basis concerned with the dialogue between science and religion. Undoubtedly, case 6 can be seen as the goal of a theology of creation, but, as a goal,

⁹ Cfr. A.E. McGRATH, *Re-Imaging Nature: The Promise of a Christian Natural Theology*, Wiley-Blackwell, Chichester 2017, 18-22.

¹⁰ Cfr. *ibidem*, 18-19.

¹¹ Cfr. SÁNCHEZ-CANIZARES, *La revelación de Dios en la creación*, 87.

¹² McGRATH, *Re-Imaging Nature*, 21-22.

¹³ *Ibidem*, 25.

it can hardly be the starting point for a dialogue between science and religion, including believers and nonbelievers on an equal footing. Case 1 seems too general and hardly useful for the dialogue because of two related reasons: the specification of reason as “unaided by revelation” or as a well-defined single epistemic tool seems too far-fetched. In other words, everybody appeals to reason or reasons in a human dialogue, and what is reasonable or stands to reason can be highly volatile in the development of the argument. To wit: case 1 seems to be assuming a clearly-cut logical space of research that need not be the case.

On the other hand, cases 3 and 4 appear to be well-founded but, perhaps, a bit hasty for starters. In a sense, they remind the Catechism of the Catholic Church when referring to the proofs of the existence of God as different from proofs in natural sciences; the former are proof “in the sense of ‘converging and convincing arguments,’ which allow us to attain certainty about the truth.”¹⁴ Certainly, the human person with “his openness to truth and beauty”¹⁵ may follow such path in order to attain the mystery of (a desired) God. That being said, one may wonder what happens if the understanding of truth and beauty differs from what a believer may naively think to be the common understanding. Let me illustrate this case with two examples:

First, as already said, the Catechism clearly distinguishes between proofs for the existence of God and proofs in the natural sciences. However, it also states that “[t]hese ‘ways’ of approaching God from creation have a twofold point of departure: the physical world, and the human person.”¹⁶ Now, it is unavoidable that science mediates the approach from the physical world. One could still claim to embrace the lay-person position, where contemplation of nature inspires awe and wonder. But such a position can drive to non-objectifiable, non-sharable subjectivity. More explicitly, the Catechism speaks of heeding “movement, becoming, contingency, and the world’s order and beauty.”¹⁷ But what the layman understands by those concepts usually needs correction from the scientific picture. Prudently, the Catechism does not say much about

¹⁴ *Catechism of the Catholic Church*, no. 31.

¹⁵ *Ibidem*, no. 33.

¹⁶ *Ibidem*, no. 31.

¹⁷ *Ibidem*, no. 32.

how to understand those concepts that, although philosophical, have undergone a relevant change in their meaning through the mediation of natural science, particularly physics. A second example of misunderstanding is this: theology has frequently appealed to natural law or human ethics to defend moral absolutes across history; unfortunately, very few nonbelievers accept what natural law or human ethics amount to in the narrative of Christian theologians. The imagined common ground is shakier than initially thought.

On the contrary, McGrath's cases 2 and 5 offer a more promising common ground: that of science. Of course, I am not saying this always has to be the case or, even worse, that this scientific starting point supersedes every other despite history and cultural contexts. I willingly admit the historical and cultural tailwind for science and its inherently temporal achievements—but achievements! Even if the epistemic robustness of science can be lower than expected by many and its historical breakthroughs remain provisional, science is nowadays the most relevant and reliable actor for the progress of human knowledge. In this sense, it provides an excellent—and impossible-to-ignore—common ground for the interaction of faith and reason. An essential part of that interaction is the rational access to God through what traditional theology has called *praeambula fidei* (preambles of faith): those truths about God that can be known using natural reason. Now, said *praeambula fidei* are scientifically mediated.

III. OPPORTUNITIES IN PHYSICS FOR NATURAL THEOLOGY

Throughout this section, I will concentrate on the most promising scientific topics for engaging in a fruitful dialogue between science and religion.¹⁸ I will present the opportunities and the potential risks lurking

¹⁸ In this Section, I will reuse some of the material already published in J. SÁNCHEZ-CANIZARES, *Accepting Benedict XVI's challenge: Looking for new representations in religious teaching*, in D. EVERS, M. FULLER, A. RUNEHOF (eds.), *Creative Pluralism? Images and models in science and theology, Studies in Science and Theology*, vol. 18, Martin-Luther-University Halle-Wittenberg, Halle 2022, 115-124; IDEM, *Quantum Mechanics: Philosophical and Theological Implications*, in G. TANZELLA-NITTI, I. COLAGÉ, A. STRUMIA (eds.), *INTERS – Interdisciplinary Encyclopedia of Religion and Science*, 2019 (www.inters.org); IDEM, *Entropy, Quantum Mechanics, and Information in Complex Systems: A Plea for Ontological Pluralism*, «European Journal of Science and Theology» 12/1 (2016) 17-37; IDEM, *Universo singular: apuntes desde la física para una filosofía de la naturaleza*, UFV, Madrid 2019.

when a cursory agreement seems reachable. In this way, I will prepare the terrain for an epistemic dialogue that may result in an ontological gain in the second part of the paper (Sections 4-6).

1. The Big Bang Theory and the Doctrine of Creation

It is worth remembering that the perspective on the universe has been changing throughout the history of humanity. With the arrival of modern science, especially with the absolute conception of space and time sponsored by Newton and his followers and theorized by Kant, the usual view of the universe corresponded to that of an infinite and immutable environment, the scene of the dynamics of a material reality that, in a certain way, would be foreign to the theater where it takes place. The theory of relativity, especially the general theory, will begin to change this conception and allow the scientific study of the universe as a whole object—something unthinkable before the 20th century. Without a doubt, the big bang theory of the Belgian priest Georges Lemaître, which remains the basis of the standard cosmological model to this day (the so-called Lambda Cold Dark Matter model, or Λ CDM), represented a turning point in the scientific representation of the universe, which went from being a static spatial whole to a dynamic spatio-temporal unity, inseparable from the matter-energy that fills it.

Thus, it is not surprising that, after some centuries in which the religious doctrine of creation and the scientific understanding of the universe were at odds, the arrival of the big bang theory was perceived as external support for the Christian vision of a finite and created universe, with a beginning of time: “In fact, it would seem that present-day science, with one sweeping step back across millions of centuries, has succeeded in bearing witness to that primordial ‘Fiat lux’ uttered at the moment when, along with matter, there burst forth from nothing a sea of light and radiation, while the particles of chemical elements split and formed into millions of galaxies.”¹⁹ As is well known, these words of Pius XII, spoken barely twenty years after the formulation of the big bang theory, did not arouse Lemaître’s enthusiasm. The scientist and priest became aware of the risk of identifying God’s creative action with a concrete scientific model.

¹⁹ PIUS XII, *The Proofs for the Existence of God in the Light of Modern Natural Science: Address to the Pontifical Academy of Sciences*, November 22, 1951, no. 44.

However, the temptation for believers to benefit from science for once was too strong. Thirty years later, in a similar context, another pope, Saint John Paul II, stated that: “Any scientific hypothesis on the origin of the world, such as the hypothesis of a primitive atom from which derived the whole of the physical universe, leaves open the problem concerning the universe’s beginning. Science cannot of itself solve this question: there is needed that human knowledge that rises above physics and astrophysics and which is called metaphysics; there is needed above all the knowledge that comes from God’s revelation.”²⁰ Fair good, even if some clarifications on the meaning of the term “beginning” in this speech would be more than welcome. But this speech was extended by quoting Pius XII’s previous one, and his mention of “the work of creative Omnipotence, whose strength raised up by the powerful fiat uttered billions of years ago by the creating Mind, has spread through the universe, calling into existence, in a gesture of generous love, matter teeming with energy.”²¹

That such wording could bother even the most brilliant minds became evident when one of the most renowned scientists at the time, the late Stephen Hawking, who was present at the speech of Saint John Paul II, replied with an interpretation of the papal words in which he saw a frontal attack on his investigation of the moment:

At the end of the conference the participants were granted an audience with the Pope. He told us that it was all right to study the evolution of the universe after the big bang, but we should not inquire into the big bang itself because that was the moment of Creation and therefore the work of God. I was glad then that he did not know the subject of the talk I had just given at the conference – the possibility that space-time was finite but had no boundary, which means that it had no beginning, no moment of Creation. I had no desire to share the fate of Galileo, with whom I feel a strong sense of identity, partly because of the coincidence of having been born exactly 300 years after his death.²²

Hawking was referring to his then cosmological theory, developed in collaboration with James Hartle, called “no boundary condition,”

²⁰ JOHN PAUL II, *Address to the Plenary Session and to the Study Week on the Subject ‘Cosmology and Fundamental Physics’*, October 3, 1981, no. 2.

²¹ *Ibidem*.

²² S.W. HAWKING, *A Brief History of Time*, Bantam, New York 1988/1998, 119-120.

where the use of an imaginary time allegedly softens the singularity of the big bang until eliminated. This theory had some technical problems due to the recourse to imaginary time through what is known as a Wick rotation, but, as a scientific theory, it could and should run its course. The underlying problem is that the big bang is merely a theory that tells us nothing about the singularity from which the universe supposedly arises. It turns out crystal clear, therefore, that the big bang theory does not provide proof of the temporal beginning of the universe.²³ The reason is that the big bang refers to a space-time singularity in the classical solutions of general relativity. The latter may mean that we do not know enough physics yet to understand what happened.

One needs to specifically have a theory of quantum gravity to go beyond the big bang. But the temptation to identify God's creative act with the singularity of the big bang is huge, exposing the former to confrontation with new cosmological theories that seek to avoid said singularity: for example, the various theories about the multiverse or Roger Penrose's cyclical cosmology.²⁴ The problem seems to be that the Christian representation of creation still largely depends on a God who "sets the universe in motion." Such a dominant image forgets that "creation" primarily means a fundamental relationship of creatures with God that extends throughout the whole history of the universe. Therefore, and this is a crucial idea not yet well explained in religious instruction, creation does not occur in time: creation encompasses all time.

Moreover, philosophy can still object that, even if the universe had existed from an infinite time, it would not be equivalent to divine eternity since existing from an infinite time would merely involve the infinite succession of events of a created time. One cannot just identify the concept of eternity with that of an unlimited temporality without beginning or end. Eternity, as Boethius would very much like to explain, is much more than an infinite temporal existence²⁵.

²³ Cfr. G. TANZELLA-NITTI, *Creation*, in G. TANZELLA-NITTI, I. COLAGÉ, A. STRUMIA (eds.), *INTERS – Interdisciplinary Encyclopedia of Religion and Science*, 2024, III, 3 (www.inters.org).

²⁴ Cfr. R. PENROSE, *Cycles of Time: An Extraordinary New View of the Universe*, The Bodley Head, London 2010.

²⁵ "Aeternitas est interminabilis vitae tota simul et perfecta possessio." (BOETHIUS, *De consolazione philosophiae*, V, 6).

However, it would be a habitual view among theologians that the absolute principle of time is implicit in the creation passages of Scripture once they are understood in light of the entire biblical content, as taught from the earliest times of the Christian era and was later emphasized by the teachings of the Church.²⁶ Nevertheless, it must be noted in light of this that, although it continues to quote the Dogmatic Constitution *Dei Filius* of the First Vatican Council—which refers to God who “from the beginning of time, made from nothing the two orders of creatures, the spiritual and the corporal,” dating back to the Fourth Lateran Council (1215)—, the Catechism of the Catholic Church, in its number 293, refrains from supporting the theological opinion that embraces an absolute origin of time. In short, the medieval controversy about creation *ab aeterno* is still latent in this entire discussion.²⁷ Paying attention to this controversy should lead to improving our representations of creation, using, also in theology, for example, the relationship of the different elements and protagonists of the story that develops in a book with its author.

Consequently, the big bang theory may be completed in the future with other cosmological theories that extend it temporally into the past. But even if the big bang were the ultimate and definitive theory, we cannot know how long the gestation of the cosmos has lasted: time, in the proximity of a singularity, is not necessarily isochronous to our familiar way of measuring it.²⁸ Under no circumstances is the question of the temporal beginning of the universe equivalent to that of its metaphysical origin: the origin of being, which is the appropriate framework to refer to the mystery of creation. Lemaître already had to inform Pope Pius about it. Those authors who claim that the big bang corresponds perfectly to the idea we have of the creation of the universe by God²⁹ are not only saying too much but can lead believers to wrong representations of creation. The latter encompasses all temporality and does not necessarily imply, as Aquinas warned, an absolute beginning of time.

²⁶ Cfr. TANZELLA-NITTI, *Creation*, no. 2.

²⁷ Cfr. J.I. SARANYANA, *La creación “ab aeterno”. Controversia de santo Tomás y Raimundo Martí con san Buenaventura*, «Scripta Theologica» 5 (1973) 127-174.

²⁸ Cfr. TANZELLA-NITTI, *Creation*, III, 3.

²⁹ Cfr. BOLLORÉ, BONNASSIES, *Dieu, la science, les preuves*.

In the field of cosmology, in my opinion, the arguments underlying the temporal asymmetry of the universe, based on the Second Law of Thermodynamics, to reject a strictly cyclic universe, or those related to the fine-tuning of the fundamental constants, especially the extremely low entropy of the big bang, become much more interesting for the dialogue between science and religion and the development of a science-mediated natural theology.³⁰ These arguments, above all, show the limitations of an exclusive scientific way of thinking, which forgets the ontological and epistemic assumptions that science itself needs to develop.³¹ But such arguments do not, strictly speaking, constitute proof of creation or the existence of a Creator. On the other hand, the appeal to a strong anthropic principle—that the universe has been designed for intelligent life to appear—can be enormously attractive. Yet one should not overlook the scientific criticism that Penrose dedicated to the anthropic principles: the universe is much further out of thermodynamic equilibrium than would be strictly necessary for life to appear.³² Anthropic principles, when carelessly assumed, may become pure cosmetics: they explain very little.

2. *Quantum Mechanics and the Problem of Determination in Nature*

In the standard interpretation of Quantum Mechanics (QM), we encounter two distinct processes: (i) the deterministic and unitary evolution of the wave function, according to the Schrödinger equation, once the initial conditions have been established, and (ii) the indeterministic and non-unitary collapse of the wave function after a measurement into one of the possible outcomes regarding that specific measurement, then becoming an actual event, with a probability given by the square amplitude of this possible outcome before the measurement (the Born rule). How can the discontinuous and probabilistic wave function collapse come about through the interaction (measurement) between two parts of the physical reality? Such is a way of stating the QM measure-

³⁰ Cfr. SÁNCHEZ-CAÑIZARES, *Recensión de “Dios, la ciencia, las pruebas”*, 237; cfr. R. PENROSE, *The Road to Reality: A Complete Guide to the Laws of the Universe*, Jonathan Cape, London 2004, 730.

³¹ Cfr. M. ARTIGAS, *La mente del Universo*, Eunsa, Pamplona 2000.

³² Cfr. PENROSE, *The Road to Reality*, 762-765.

ment problem or paradox. The collapse of the wave function is, in its essence, unpredictable and also non-computable.³³ In other words, we do not possess a complete causal picture of how natural determination occurs.³⁴ This partly explains the variety of interpretations of QM, depending on the interpreters' different ontological and epistemological assumptions: "the multiplicity of coexisting interpretations highlights the need for a meta-scientific perspective to evaluate the different interpretations of the theory."³⁵

The problem of understanding the transition from the quantum to the classical world remains one of the most elusive problems in our current understanding of the universe. We lack a unified theory that explains how nature determines itself at different physical scales. Therefore, it is conceivable that God's causal action is present in every natural process, regardless of the physical scale involved. To put it bluntly, lacking sufficient cause for natural determination, some researchers see in it an opportunity to make room for divine action in the world. In particular, the "non-interventionist objective divine action" (NIODA) project³⁶ has tackled this classical challenge of natural theology.

Proponents of NIODA argue that an interventionist God would face challenges when trying to reconcile omniscience and omnipotence with the need to address all imperfections present in creation from the beginning. Additionally, they seek to avoid the potential pitfalls of con-

³³ Cfr. J. SÁNCHEZ-CANIZARES, *The Mind-Brain Problem and the Measurement Paradox of Quantum Mechanics: Should We Disentangle Them?*, «NeuroQuantology» 12/1 (2014) 76-95.

³⁴ Cfr. J. ARANA, *Los sótanos del universo: La determinación natural y sus mecanismos ocultos*, Biblioteca Nueva, Madrid 2012.

³⁵ C. VANNEY, *Is Quantum Indeterminism Real? Theological Implications*, «Zygon» 50 (2015) 736-756.

³⁶ Cfr. R.J. RUSSELL, N.C. MURPHY, C.J. ISHAM, *Quantum Cosmology and the Laws of Nature: Scientific Perspectives on Divine Action*, Vatican Observatory Publications, Città del Vaticano 1993; R.J. RUSSELL, N.C. MURPHY, A.R. PEACOCKE, *Chaos and Complexity: Scientific Perspectives on Divine Action*, Vatican Observatory Publications, Città del Vaticano 1995; R.J. RUSSELL, W.R. STOEGER, F.J. AYALA, *Evolutionary and Molecular Biology: Scientific Perspectives on Divine Action*, Vatican Observatory Publications, Città del Vaticano 1998; R.J. RUSSELL, *Neuroscience and the Person*, Vatican Observatory Publications, Città del Vaticano 1999; R.J. RUSSELL, P. CLAYTON, K. WEGTER-McNALLY, J.C. POLKINGHORNE, *Quantum Mechanics: Scientific Perspectives on Divine Action*, Vatican Observatory Publications, Città del Vaticano 2001.

flating divine causality with natural causality, thereby falling into the conceptual trap known as the “god of the gaps.” The NIODA project implicitly adopts a view of nature that allows for non-physical causal powers to exist, suggesting that there are causes that cannot be fully understood or explained through the methods of physics alone. This perspective acknowledges the possibility that God can objectively act within nature without violating any of its laws.³⁷

On the other hand, the NIODA project, in its pursuit to ascribe a role to God in determining specific effects within nature, inevitably faces the issue of God’s involvement in the evolutionary process, which leads to suffering and holds God accountable for the physical evil stemming from evolution³⁸. Regardless of God’s benevolent intentions in the long run, He remains implicated in the outcomes of natural processes and must thus assume responsibility, as posited within the framework of NIODA.

Be it as it may, there are compelling reasons to think that one cannot pigeonhole God’s action in nature in clear-cut epistemic categories. That is why NIODA may be scoring. Moreover, since scientific knowledge and reality are not straightforwardly equivalent and some epistemic limits of scientific theories are acknowledged, one may argue that chance and randomness become more congruent with finality and the theological account of God’s relationship to the world. Random outcomes of experiments in nature seem to make room for divine causality in processes that might be both contingent and guided because “the causality of God, Who is the first agent, extends to all being, not only as to constituent principles of species, but also as to the individualizing principles [...]. It necessarily follows that all things, inasmuch as they participate in existence, must likewise be subject to divine providence.”³⁹ Ontological indetermination of QM, however, paves the way

³⁷ Cfr. J. SÁNCHEZ-CAÑIZARES, *NIODA and the Problem of Evil: God as Ultimate Determiner*, «Religions» 14 (2023) 1037.

³⁸ E. QURESHI-HURST, *Does God Act in the Quantum World? A Critical Engagement with Robert John Russell*, «Theology and Science» 21 (2023) 106-121.

³⁹ T. AQUINAS, *Summa Theologiae*, I, q. 22, a. 2; INTERNATIONAL THEOLOGICAL COMMISSION, *Communion and Stewardship: Human Persons Created in the Image of God*, LEV, Città del Vaticano 2004, no. 69.

for a new theology of nature in which God's eternity grounds creatural time shunning any predetermination of sorts. Unreachable in his ineffable mystery, creatures always experience God as their future source of determination.⁴⁰

In addition, the quantum feature of entanglement may still inspire a more holistic and ecological view of creation. Albeit in different manners and degrees, we dwell in a non-local universe in which everything is interconnected—everything is interrelated.⁴¹ Extreme sensitivity to boundary conditions is a hallmark of our universe, allowing for the emergence of complex structures. Such remarkable features could ultimately stem from quantum entanglement, decoherence, and top-down determination. Moreover, if God acts in the universe at the utmost level of totality, then He could be causally influencing in a top-down manner without abrogating the laws and regularities that operate at the myriad sub-levels of existence that constitute that world. One might think of God as providing the ultimate top-down causation for natural determination.⁴²

QM's ontological indetermination thus permits us to contemplate the universe as a place where openness, flexibility, and even freedom could naturally emerge.⁴³ But is this not what one should expect of a creation stemming from a personal Creator? With all its difficulties and paradoxes, QM leads toward a more mature view of nature, superseded-

⁴⁰ Cfr. W. PANNENBERG, *Systematic Theology*, vol. 2, T&T Clark International, London-New York 2004.

⁴¹ Cfr. FRANCIS, *Encyclical Letter Laudato si'* (May 24, 2015), «Acta Apostolicae Sedis» 107 (2015) 847-945, no. 70, 92, 120, 142.

⁴² Cfr. SÁNCHEZ-CANIZARES, *Quantum Mechanics*; IDEM, *NIODA and the Problem of Evil*.

⁴³ God's action and an open universe may go together if God's determination of nature is understood in a non-interventionist way, as NIODA proposes. A possible way to understand this is considering God's determinative action in nature as eternal (not different from creation) and global so that it cannot be grasped with scientific methodology but only intuited in an open universe, i.e., a universe that is not physically causally closed. Cfr. A.R. PEACOCKE, *God's Interaction with the World: The Implications of Deterministic 'Chaos' and of Interconnected and Interdependent Complexity*, in R.J. RUSSELL, N.C. MURPHY, A.R. PEACOCKE (eds.), *Chaos and Complexity: Scientific Perspectives on Divine Action*, Vatican Observatory Publications, Città del Vaticano 1995, 281; VANNEY, *Is Quantum Indeterminism Real?*

ing stifling, old-fashioned scientific, philosophical, and theological perspectives. The limits of our scientific knowledge—as shown by QM—might aim at acknowledging its ontological foundations as necessary presuppositions of the scientific endeavor itself.

[I]f the logos of all being, the being that upholds and encompasses everything, is consciousness, freedom, and love, then it follows automatically that the supreme factor in the world is not cosmic necessity but freedom [...]. [T]his means that together with freedom the incalculability implicit in it is an essential part of the world. Incalculability is an implication of freedom; the world can never—if this is the position—be completely reduced to mathematical logic [...]. A world created and willed on the risk of freedom and love is no longer just mathematics.⁴⁴

Unquestionably, this is a promising path for science-mediated natural theology.

3. *The Mind-Brain Problem and the Unity of Complex Dynamical Systems*

The Catechism refers to the human person as a *via* to attain God.⁴⁵ In natural sciences, this path is closely related to the mind-brain problem: the existence of a mind that, allegedly, is irreducible to the workings of the human brain. Even if neurosciences could pinpoint the neural correlates of consciousness, a different matter is to explain the emergence of subjectivity—what it is like to be like oneself—or free will. Despite the ruckus caused in the 1980s by Libet's experiments,⁴⁶ the usual view among philosophers is that said experiments do not say anything about human free will.⁴⁷

The mind-brain problem contains a whole complex of issues stemming from neurosciences and the field of philosophy of mind. There are different attempts in the market of ideas to tackle the issue.

⁴⁴ J. RATZINGER, *Introduction to Christianity*, Ignatius Press, San Francisco 1990/2004, 128. I will resume this quote at the end of Section 6.

⁴⁵ Cfr. *Catechism of the Catholic Church*, no. 31, 33.

⁴⁶ Cfr. B. LIBET, E.W. WRIGHT, C.A. GLEASON, *Readiness-potentials preceding unrestricted 'spontaneous' vs. pre-planned voluntary acts*, «Electroencephalography and Clinical Neurophysiology» 54/3 (1982) 322-335.

⁴⁷ Cfr. M.E. SCHLOSSER, *The neuroscientific study of free will: A diagnosis of the controversy*, «Synthese» 191/2 (2014) 245-262. For a recent, opposite take on this, cfr. R.M. SAPOLSKY, *Determined: A Science of Life Without Free Will*, Penguin Press, New York 2023.

For our interests, what seems more relevant is the existence of projects aiming at naturalizing the mind or human subjectivity. These projects need not be mistaken for naturalism or physicalism. On the contrary, they might showcase the presence of immateriality in nature, bridging the modern Cartesian gap between matter and spirit. There is room for immaterial features in nature and, consequently, for the possibility of immaterial causal influence of the spirit, ranging from the human soul to God himself.

More interestingly, in the face of the mind-brain problem, the complete reductionist project seems to fall apart. Many perspectives witness such a failure: Penrose's three worlds,⁴⁸ Whitehead's two worlds,⁴⁹ or the scientific construction itself, as one of the most spiritual activities carried out by the human being. New principles lift off in nature according to some incomputable plan that, for human beings, takes on the form of a remarkable blending of randomness and necessity in epistemology and indetermination and determination in metaphysics. It seems that the last epoch in evolutive history must count on the presence of human activities: knowledge, freedom, and love.⁵⁰ If that is so, there is room to understand the presence of the human person in continuity with nature,⁵¹ as the apex of evolution, and as the recapitulation of the non-human universe thanks to their immaterial knowledge.⁵² The last element in a series shares both features of continuity and discontinuity, so that the emergence of the human soul might signal the takeoff of immateriality in the natural world.

These last considerations bring us naturally to the question of the emergence of complexity in the universe. The human mind belongs here but in its unique and singular way. We have this exceptional case of conti-

⁴⁸ Cfr. PENROSE, *The Road to Reality*, 17-21.

⁴⁹ “[T]he world for me is nothing else than how the functionings of my body present it for my experience. The world is thus wholly to be discerned within those functionings [...]. And yet, on the other hand, the body is merely one society of functionings within the universal society of the world” (A.N. WHITEHEAD, *Modes of Thought*, MacMillan, New York 1938, 224-225).

⁵⁰ Cfr. RATZINGER, *Introduction to Christianity*, 255.

⁵¹ Cfr. J. NOVO, *Evolución, para creyentes y otros escépticos*, Rialp, Madrid 2019.

⁵² Cfr. J. SÁNCHEZ-CAÑIZARES, *Immaterial Knowledge as Ultimate Emergence*, «European Journal of Science and Theology» 18/6 (2022) 113-128.

nunity and discontinuity for human beings: these are complex systems, ultimate in their material complexity. Of course, God is the God of humans, but not only. He is also the God of all creation, a creation where there is room for a plurality of causal principles in keeping with the specific nature of each being. Remarkably, despite such plurality, complex systems keep their unity and distinguish themselves from the rest of creation, resembling the personal distinctions in the Trinity's bosom. Unity and plurality, spirit and matter, have a place in God's creation.

Complexity is a catchword that may help theological reflection. For the mathematical evolutionists, "All the 'fitting' between mathematics and the regularities of the physical world is done within the minds of physicists who comprehend both."⁵³ Fair enough, all normativity could be a construction of the human mind, but if human brain working is not different from any other physical or biological system, how does normativity stem from a universe without normativity? Somehow, normativity itself is beyond evolution's epistemic framework.⁵⁴ Science itself is beyond evolution's epistemic framework because the "aim of science is not just the manufacture of new toys: it is the enrichment of the human spirit."⁵⁵ Complex dynamical systems (CDS) undoubtedly point toward an irreducible interplay between different levels of reality.⁵⁶

CDS are partly independent of their parts, which often become replaceable components.⁵⁷ It is thus problematic to deny some ontic independence for the upper levels of complexity in nature. New types of entities and qualitatively different regimes emerge as the upshot of irreversible phase transitions. With the onset of new regimes, the system top-down constrains its lower-level behavior. A different method is thus necessary to approach the emergent level of complexity: a redefinition

⁵³ G. LAKOFF, R.E. NÚÑEZ, *Where Mathematics Comes From: How the Embodied Mind Brings Mathematics into Being*, Basic Books, New York 2000, 344.

⁵⁴ Cfr. C. BLANCO, *Truth in an Evolutionary Perspective*, «Scientia et Fides» 2/1 (2014) 203-219.

⁵⁵ I. STEWART, M. GOLUBITSKY, *Fearful Symmetry: Is God a Geometer?*, Penguin Books, London 1993, 128.

⁵⁶ SÁNCHEZ-CAÑIZARES, *Entropy, Quantum Mechanics, and Information in Complex Systems*.

⁵⁷ Cfr. A. JUARRERO, *Dynamics in Action: Intentional Behavior as a Complex System*, «Emergence» 2 (2000) 24-57.

of degrees of freedom and phase space turns out to be inevitable. In that sense, the new description is level-dependent and, since it depends on human epistemic interest, human-dependent.⁵⁸ As QM suggests, knowledge makes a difference in the world because logical conditioning also makes a real difference. The presence of mind—the subjective side of objective logos—makes a difference in nature.

Despite some attempts to explain the reality of indeterminacy and free will through deterministic chaos,⁵⁹ identifying randomness with unpredictability,⁶⁰ deterministic chaos itself cannot explain the emergence of upper levels of complexity, as in CDS. There are new sources of determination at different levels because lower levels are not sufficient conditions for upper levels. Hence, it is hardly surprising that one has to complement the principle of sufficient reason with new principles. In that sense, QM's intrinsic indeterminism need not be equivalent to free will; it simply reflects some inherent limitation of physics within the realm accessible to human freedom and spiritual determination. The QM measurement problem might turn out unsolvable.

As a consequence, there are more than clouds on the reductionist horizon and on the possibility that an ultimate “theory of everything” can be formulated as a finite number of principles.⁶¹ No finite set of efficient causes will describe the becoming of the universe, including the mind. “We do not know all the possibilities in the adjacent possible of the biosphere! Not only do we not know what will happen, we do not even know what can happen.”⁶² To be sure, science resorts to probability distributions to deal with unknowability, but we do not even know the set of possibilities in many cases. This last statement is hardly shocking since

⁵⁸ Cfr. SÁNCHEZ-CANIZARES, *The Mind-Brain Problem and the Measurement Paradox of Quantum Mechanics*, 91-92.

⁵⁹ Cfr. C. ROVELLI, *Free Will, Determinism, Quantum Theory and Statistical Fluctuations: A Physicist's Take*, «Edge» (July 8, 2013): <http://edge.org/conversation/free-will-determinism-quantum-theory-and-statistical-fluctuations-a-physicists-take>.

⁶⁰ Cfr. A. EAGLE, *Randomness is Unpredictability*, «British Journal for the Philosophy of Science» 56/4 (2005) 749-790.

⁶¹ Cfr. S.W. HAWKING, *Gödel and the End of Physics* (2002): <https://www.hawking.org.uk/in-words/lectures/godel-and-the-end-of-physics>.

⁶² S.A. KAUFFMAN, *Five Problems in the Philosophy of Mind*, «Edge» (August 6, 2009): <https://edge.org/conversation/five-problems-in-the-philosophy-of-mind>.

true novelties and differences appear in the universe, and the principles required to approach said new phenomena can only be a posteriori. The alternative is not between pure determinism and randomness—as, for example, the emergence of the classical world from decoherence illustrates. We need an a priori cognitive, specifically human identification of the problem—what should be the system and the environment and the relevant degrees of freedom—to tackle it.

To sum up, we deal with different levels of reality in CDS and have to invoke some novel constraints or conditions for understanding the emergence of upper levels from lower ones. If someone wishes to maintain a global microscopic determinism, the emergence of higher-level constraints—such as the Second Law of Thermodynamics, the quantum wave function collapse, and the extant information in non-interpreted nature—should be explained from much more basic laws. Otherwise, a diehard reductionist can maintain the view that the emergence of complexity is purely epistemic; were that the case, we can no longer trust our scientific access to reality, undermining the fundamental realism of science and science itself. Certainly, Tegmark is right when affirming that the “quests to better understand the internal reality of our mind and the external reality of our universe will hopefully assist one another,”⁶³ but theology could spell it out better with the words of Benedict XVI:

Mathematics, as such, is a creation of our intelligence: the correspondence between its structures and the real structures of the universe—which is the presupposition of all modern scientific and technological developments, already expressly formulated by Galileo Galilei with the famous affirmation that the book of nature is written in mathematical language—arouses our admiration and raises a big question. It implies, in fact, that the universe itself is structured in an intelligent manner, such that a profound correspondence exists between our subjective reason and the objective reason in nature. It then becomes inevitable to ask oneself if there might not be a single original intelligence that is the common font of them both.⁶⁴

Has natural theology dared to explore such a correspondence and its possible consequences? It does not seem so.

⁶³ M. TEGMARK, *Consciousness as a State of Matter*, «Chaos, Solitons and Fractals» 76 (2015) 238-270.

⁶⁴ BENEDICT XVI, *Address to the Participants on the Occasion of the Fourth National Ecclesial Convention in Verona*, October 19, 2006.

IV. HOW TO RELATE SCIENCE AND THEOLOGY: WHAT COUNTS AS A SCIENTIFIC EXPLANATION?

After briefly reviewing the most promising paths for the dialogue between science and theology, in the second, shorter part of this contribution, I will endeavor to show how we can bridge the gap from epistemology to ontology by heeding the structure of scientific theories and models. Remarkably, these structures tell us something about God, as natural language does.⁶⁵ True, one cannot transition from science to theology without the epistemic mediation of philosophy. But what does it specifically mean?

From a negative perspective, it means that the dialogue between science and religion always risks being too hasty. One needs a careful elucidation of the scientific concepts, one of the main tasks of philosophy, especially epistemology, before trying to extract from such concepts any relevant information for the comprehension of faith, the *fides quaerens intellectum* of theology. For example, it would be misgiving to deduce that God exists because the probability for the emergence of life in the universe is tiny or, as previously mentioned, because the big bang entails an absolute origin of time.⁶⁶

On the first issue, invoking the low probability of the transition from the non-inert to the living has become a classic argument in the dialogue between science and religion. If hypertrophied, such an argument could lead to embracing less scientifically desirable positions, such as “Intelligent Design.” One of the fundamental problems is the difficulty of quantifying the probability of the appearance of life in the universe due to the many conditionings that such a calculation would require and our lack of knowledge of the relevant space of possibilities. But even more worrying is the danger of performing a logical inference from a low probability. To be sure, life is complex, astonishingly complex, and unlikely in the universe, as far as we know, although our sample space is too small compared to the size of the visible universe. Does the passage from the inert to the living constitute proof of the existence of God? It is more than doubtful.

⁶⁵ Cfr. R. WILLIAMS, *The Edge of words: God and the Habits of Language*, Bloomsbury, New York 2014.

⁶⁶ Cfr. BOLLORÉ, BONNASSIES, *Dieu, la science, les preuves*.

Related to the second question, apart from what I already explained in subsection 3.1, one could claim that if the past were infinite, the present would never have happened.⁶⁷ But it is reckless, as Cantor knew well, to play happily with infinity. This kind of argument would also serve to say that if we add an infinite number of addends, the result can never be finite. However, despite Zeno, we now know that this is not the case thanks to infinitesimal calculus. There are convergent series and integrals. Their convergence depends on technical details that one may easily overlook when fast-transitioning from science to theology. One could not say better than the devil is in these details.⁶⁸

There is always the risk of haste: the haste in moving from a scientific problem to the existence of a personal creator God. And there is always the risk of a too-quick dismissal of reductionism in favor of anthropocentrism.⁶⁹ It will always be possible for us to find new arguments, unknown today, that explain what we do not know. And these new arguments will raise new questions. In this journey forward, the demarcation criteria between disciplines can become blurred. It seems much more promising, though, to focus on the epistemology of science and see how to summon the link to ontology.

For instance, the principle of sufficient reason has been lately challenged⁷⁰ because of its impossible fulfillment within the scientific methodology alone. Such controversy hints at the fecundity of epistemology in a science-mediated natural theology. Let me explain the project more carefully. Since we may never have a workable representation of divine action in nature, not to mention a scientific model, natural theology must sail between two external boundaries: the Scylla of the god of the gaps, in which God ultimately acts at the same level of natural causes, and the Charybdis of making God redundant if, as the primary cause of deism, becomes untraceable in natural processes.⁷¹ The first boundary

⁶⁷ Cfr. *ibidem*.

⁶⁸ Cfr. SÁNCHEZ-CAÑIZARES, *Recensión de “Dios, la ciencia, las pruebas”*, 238.

⁶⁹ Cfr. D.A. FINNEGAN, D.H. GLASS, M. LEIDENHAG, D.N. LIVINGSTONE, *Conjunctive Explanations in Science and Religion*, Routledge, London 2023.

⁷⁰ Cfr. R. PEREDA, *El principio de razón suficiente y la ciencia*, «Scientia et Fides» 2/1 (2014) 125-138.

⁷¹ Cfr. SÁNCHEZ-CAÑIZARES, *Quantum Mechanics: Philosophical and Theological Implications*.

is trodden by interventionist accounts of divine action in nature, fostering an incompatible view of science and religion; the second boundary commonly relies in the orthogonality of methods, making the dialogue ultimately impossible.

The challenge, hence, according to the view I am proposing in this contribution, consists of articulating the primary cause and the secondary natural causes and overcoming the risk of a clash with the unwanted boundaries. In scholastic parlance, one could say that the distinction between essence and act of being should not legitimize their separation in God's unique creative action. A God that is both transcendent to and immanent in nature must make a difference in how natural processes develop. As beautifully expressed by Ratzinger, "the model from which creation must be understood is not the craftsman but the creative mind"⁷². The project should then aim at showing the presence of creativity and novelty in nature⁷³, as opposed to a deterministic and mechanic universe. One may confront said task through the ongoing purification of the epistemic assumptions behind science and theology, where each discipline helps purify the other, namely, the task of philosophy. Only then can we move from epistemology to ontology.

V. ASSUMPTIONS BEHIND SCIENTIFIC THEORIES AND MODELS:

MAKING EXPLICIT THE IMPLICIT

Before entering the last section of this paper, we need to pay heed to how scientific theories and models work. In science, one usually uses the term theory for a general set of propositions containing necessary relations between the fundamental quantities of the theory: special relativity relates the speed of light as a constant to the metric of spacetime, the Schrödinger equation of QM links the variation of the wave function to the Hamiltonian expressing energetic relations, and the synthetic theory of evolution introduces variations in the genotype that must remain, a priori, independent of the phenotype adaptation to the environment. However, the connection of theories with experiments and reality requires something more. Models that particularize the theories in specific contexts are the bread and butter of everyday science.

⁷² RATZINGER, *Introduction to Christianity*, 126.

⁷³ Cfr. J. NOVO, R. PEREDA, J. SÁNCHEZ-CANIZARES, *Naturaleza creativa*, Rialp, Madrid 2018.

Whereas theories remain at a high level of abstraction, at the level of fundamental principles of nature, models are necessary to test their stem theories. Models need auxiliary assumptions, in the form of, e.g., range of applicability, sensitivity of apparatuses, or differentiation between system and environment, that, strictly speaking, need not belong to the theories. Of course, should one belong to the group of die-hard reductive physicalists, one could assume that, with additional and well-motivated simplifications, one could derive the particular auxiliary assumptions from the overarching theory. Simplifications are thus usually employed for practical, epistemic, and computational reasons. But is it always so?

Let me illustrate the problem with a paradigmatic example. Models particularize theories via the almost universal tool of differential equations. Any scholar with an average knowledge of mathematics is well aware that differential equations usually possess a varied number of particular solutions: if differential equations are linear, any sum of solutions is also a solution. But even if differential equations are non-linear, obtaining the specific solution that reproduces the natural process of interest requires external conditions, i.e., initial and boundary conditions. Solutions to differential equations, as mathematical expressions of models, are highly context-sensitive. The crucial point is that such a piece of contextual information belongs to a level of abstraction that is different from that of the dynamical quantities of the model.⁷⁴ Moreover, information at distinct levels of abstraction is highly unlikely reducible to information at a unique and fundamental level of abstraction; the risk of infinite regress looms large.

The previous example is not just a technical problem. Philosophers of biology have long recognized the difficulty in scientifically determining, not only synchronically but diachronically, what a specific living system is. Current approaches to the philosophy of life, such as enactivism or ecological psychology, need to assume the system-plus-environment partition in the universe in order to attempt to characterize life

⁷⁴ Cfr. R. BISHOP, G.F.R. ELLIS, *Contextual Emergence of Physical Properties*, «Foundations of Physics» 50/5 (2020) 481-510; G.F.R. ELLIS, *On the limits of quantum theory: Contextuality and the quantum-classical cut*, «Annals of Physics» 327/7 (2012) 1890-1932.

phenomena, incurring a manner of circular causality⁷⁵ unless different types of causality are permitted. Complex phenomena dwell far from thermodynamic equilibrium, present variegated levels of interactions, and, more importantly, are highly sensitive to contexts for their emergence. Therefore, how should we understand the emergence of systems increasingly complex in the universe, or at least on planet Earth?

VI. FROM EPISTEMIC TO ONTOLOGICAL EMERGENCE

A new way of conceptualizing the emergence of complexity seems unavoidable, according to which boundaries of dynamical systems are best conceptualized as sites of phase changes where a different phase portrait can suddenly appear. Complex systems are the locus of emergent properties⁷⁶. Were that so, the emergence of true novelty defines the system and its degrees of freedom. The mechanical paradigm of a priori defining the phase space for the whole problem is no longer valid;⁷⁷ new degrees of freedom may appear as complexity in new systems emerges. What could be considered by some only as an epistemic oddity or a simplified description provides a crucial clue to license a non-trivial transition from epistemology to ontology.

In other words, the epistemic impossibility of predicting the behavior of nature and its processes beyond extremely controlled contexts signals the presence of a kind of causality that is a presupposition, and not a consequence, of every scientific description of individual systems or processes. New forms arise in nature that cannot be predicted in a bottom-up manner by theories and models alone. The emergence of forms exerting formal causation in a timely fashion, in keeping with some unknown teleology for science, allows for a universe in which individuality and relations constitute its deeper metaphysical tissue. But, if that is true, one must also assume the fundamental incompleteness of the laws of nature as de-

⁷⁵ Cfr. J. SÁNCHEZ-CAÑIZARES, *The Free Energy Principle: Good Science and Questionable Philosophy in a Grand Unifying Theory*, «Entropy» 23/2 (2021) 238; M. HERAS-ESCRIBANO, M. DE PINEDO, *Are affordances normative?*, «Phenomenology and the Cognitive Sciences» 15/4 (2016) 565-589.

⁷⁶ Cfr. SÁNCHEZ-CAÑIZARES, *Entropy, Quantum Mechanics, and Information in Complex Systems*, 20.

⁷⁷ Cfr. S.A. KAUFFMAN, *Investigations*, Oxford University Press, Oxford 2000, X. IDEM, *Humanity in a creative universe*, Oxford University Press, Oxford 2016.

scribed by physics and the orthogonality of determinism with an open nature in which God can act from within as its Creator.

Actually, one might ask, if everything is determined and can be explained away by natural laws, what arguments remain in favor of a personal Creator?⁷⁸ Aquinas invokes the distinction between primary and secondary causes to boldly affirm that “it is necessary to return those things which are made by nature also to God, as to the first cause.”⁷⁹ Then, a follow-up question is whether one could find specific traces in the workings of nature—as hinted at by the opportunities mentioned in Section 3—pointing towards the primary-secondary, i.e., divine-natural, structure in causality. Fair well, it seems that scientific knowledge is finally revealing an intrinsically contingent nature of physical processes, making room for natural self-determination according to an open causal structure where God is no stranger but its utmost grounding, the ultimate determiner. As a boon, such a view would also open up new possibilities to understand the problem of evil in modern theodicy.⁸⁰

If the image of a creative nature, open to God from within, supersedes the deterministic paradigm to understand nature, a theological message has to be unpacked.⁸¹ First of all, the misunderstanding of a divine action comparable to natural processes can be overcome, as epistemology shows the principle of physical causal closure of the universe to be a red herring: “The idea that God can bring forth what is new and unusual only by breaking the laws of nature has been overruled by the insight that for all their regularity the laws of nature do not have the character of closed (or, better, isolated) systems.”⁸² God does not need gaps in nature to act; He acts in nature as his eternal Creator.

Secondly, one may speak of a proto-freedom in the inner workings of nature at many different levels, which paves the way for the ultimate emergence of spiritual human beings through evolution. As pointed out by Ratzinger, but not yet fully developed by natural theology, there is in

⁷⁸ Cfr. AQUINAS, *Summa Theologiae*, I, q. 2, a. 3.

⁷⁹ “Necesse est ea quae a natura fiunt, etiam in Deum reducere, sicut in primam causam” (*ibidem*).

⁸⁰ Cfr. SÁNCHEZ-CAÑIZARES, *NIODA and the Problem of Evil*.

⁸¹ Cfr. IDEM, *Quantum Mechanics*.

⁸² PANNENBERG, *Systematic Theology*, 73.

creation a “primacy of freedom against the primacy of some cosmic necessity or natural law [...]. [T]ogether with freedom, incalculability implicit in it is an essential part of the world. Incalculability is an implication of freedom; the world can never—if this is the position—be completely reduced to mathematical logic.”⁸³ Moreover, “the last stage of evolution needed by the world to reach its goal would then no longer be achieved within the realm of biology but by the spirit, by freedom, by love. It would no longer be evolution but decision and gift in one.”⁸⁴

We live in a universe that tends to life and freedom, but we are also well aware of the risk of freedom, especially in the spiritual life. Very likely, it has been Wolfhart Pannenberg who has more deeply discussed, in dialogue with science, the ambivalent theological meanings of the emergence of individual systems in the universe: individual systems that resemble the self-distinction of the Son in the bosom of the Triune God: “[I]f from all eternity, and thus also in the creation of the world, the Father is not without the Son, the eternal Son is not merely the ontic basis of the existence of Jesus in his self-distinction from the Father as the one God; *he is also the basis of the distinction and independent existence of all creaturely reality.*”⁸⁵ However, individual systems that only too often turn closed in themselves and reject healthy relations with the rest of the world, being overcome by corruption and sin, expecting the working of the Spirit of God in the dynamics of natural occurrence.⁸⁶ The Spirit “has to overcome the rifts that come as creaturely existence makes itself independent.”⁸⁷

Within worldly time it appears as a time-bridging present in the duration of forms. In this duration of creaturely forms, which also brings them together in space, we have a kind of inkling of eternity. The goal of the Spirit’s dynamic is to give creaturely forms duration by a share in eternity and to protect them against the tendency to disintegrate that follows from their independence.⁸⁸

⁸³ RATZINGER, *Introduction to Christianity*, 127-128. See also footnote 43.

⁸⁴ *Ibidem*, 255.

⁸⁵ PANNENBERG, *Systematic Theology*, 23. The italics are mine. “[A]ll creaturely distinction from God and from other creatures is to be understood as deriving from the Son’s self-distinction from the Father and its manifestation.” (*ibidem*, 84).

⁸⁶ Cfr. *ibidem*, 76.

⁸⁷ *Ibidem*, 84.

⁸⁸ *Ibidem*, 102.

7. CONCLUSIVE REMARKS

The fate of Natural theology seems to be doomed to failure. No matter how many caveats and disclaimers theologians introduce in their narratives, one may always focus on their falling short of providing cogent reasons instead of mere plausible reasons. A science-mediated natural theology is very likely also bound to fail. But it may fail less badly. The recipe for a less dramatic failure or even a moderate success, should one beg for the upbeat note, lies in embracing philosophical mediation, particularly the critical role of epistemology. The journey is not easy, to be sure, as one needs to speak the habitual terminology of science and be ready to embark on the philosophical fray. For natural theology, however, entering uncharted territory may turn out rewarding.

One of the main reasons for the abovementioned global failure is the risk of introducing divine action in nature too fast. No natural theology will ever ward off such a threat. My proposal here has been to change perspective. As taught by the lifelong work of Professor Tanzella-Nitti, theology should know better and exorcize its fear of being in hot water. Current science provides magnificent opportunities for a sincere dialogue about our overall understanding of the universe if one speaks the language and knows its limits.⁸⁹ By and large, the modern materialistic and non-theistic perspective of nature called physicalism is at pains to be consistent, especially when confronted with epistemology. Nevertheless, physics cannot consistently, namely, in a bottom-up fashion, explain the emergence of the different natural levels. The burden of the proof has now shifted; natural theologians should be happier and more aware of it.

Motivated by these epistemic issues, I have endeavored to present a possible way for a science-mediated natural theology in the last part of this contribution. Natural theology has an enormous amount of resources to offer to expand a sincere dialogue with scientists and intellectuals concerned about the foundations of human knowledge, particularly scientific knowledge. Theologically grounded scientific activity provides reasons for distinctions and relations between natural systems.

⁸⁹ Cfr. G. TANZELLA-NITTI, *Si può parlare di Dio nel contesto della scienza contemporanea?*, «Scientia et Fides» 4/1 (2016) 9-26.

If the particulars also belong to science, the existence of a coherent link between scientific knowledge and other forms of human knowledge may as well be well-anchored in the deep structure of reality, which can only be that of a trinitarian creation. Let me thus conclude this contribution by paying homage to Professor Tanzella-Nitti with a last expression of such an endeavor in Pannenberg's words:

Theologically one may see in the rise of each particular form a direct expression in creaturely reality of the working of the Logos, of the divine Word of Creation. This development finds its completed form only in the self-distinction by which the individual creature affirms its uniqueness vis-a-vis all others. Only thus can it also affirm God to be the origin of everything finite in his distinction from all that is creaturely, thus paying him the honor of his deity. For this reason the Logos does not find full manifestation in the isolated uniqueness of an individual phenomenon but in its relations to everything else, i.e., in the total order, which as such extols its Creator.⁹⁰

⁹⁰ PANNENBERG, *Systematic Theology*, 114.

AQUINAS' LEGACY IN THE CONTEMPORARY DIALOGUE BETWEEN SCIENCE AND FAITH

ALBERTO STRUMIA

Formerly Professor at University of Bologna, Bari and Rome

ABSTRACT: We present an introduction to Aquinas' eminent personality and his original view of human cognition and epistemology including theology among the sciences. A sketch of the more relevant results of some recent sciences in order to establish the required *Theory of foundations* common to all of them is presented. Remarkably the Aristotelian Thomistic logic and metaphysics, even if rewritten in the symbolic language of our contemporary sciences, appear to be strongly adequate to assume the very role of such a *Theory of foundations*. Some foreseeing texts of the Catholic Magisterium on science are also examined. What is offered in the present paper has been developed along the last thirty years of collaboration with Prof. Giuseppe Tanzella-Nitti in the *Centro di Documentazione Interdisciplinare di Scienza e Fede* (disf.org).

KEYWORDS: Thomas Aquinas, Albert the Great, Epistemology, Computer Science, Logic, Metaphysics, Foundations of Sciences, Analogy, Abstraction, Magisterium, Natural Law.

RIASSUNTO: Il lavoro intende offrire inizialmente un'introduzione alla personalità eminente dell'Aquinate e alla sua originale visione della cognizione umana e dell'epistemologia, che comprende anche la teologia tra le scienze. Viene poi presentato uno schema dei risultati più rilevanti di alcune scienze recenti volti ad indagare una ormai necessaria *Teoria dei fondamenti* comune a tutte loro. Sorprendentemente, la logica e la metafisica aristotelico-tomista, riscritte nel linguaggio simbolico delle nostre scienze contemporanee, sembrano essere decisamente adeguate ad assumere il ruolo di tale *Teoria dei fondamenti*. Vengono inoltre esaminate alcune prospettive precorritrici del Magistero cattolico sulla scienza. Quello che viene proposto nel presente articolo è stato maturato in circa trent'anni di collaborazione con il Prof. Giuseppe Tanzella-Nitti presso il *Centro di Documentazione Interdisciplinare di Scienza e Fede* (disf.org).

PAROLE CHIAVE: Tommaso d'Aquino, Alberto Magno, Epistemologia, Informatica, Logica, Metafisica, Fondamenti delle Scienze, Analogia, Astrazione, Magistero, Legge Naturale.

SUMMARY: I. *A Sort of “Autobiographical” Introduction*. II. *A Meaningful Example*. III. *St. Thomas Aquinas: The Saint, the Doctor, the Genius*. IV. *The Philosophical Crisis of Realism and Metaphysics*. V. *The Epistemology of St. Thomas Aquinas*. VI. *Today’s Sciences in front of St. Thomas. The Search for a Foundation Theory as a Metaphysical Quest*. 1. The Sciences Seem to Rediscover Analogy. 2. Cognitive Sciences and the Aristotelian-Thomistic Theory of Abstraction. 3. Some Remarks on Artificial Intelligence. VII. *A Sort of Sapiential Conclusion from the Magisterium*. 1. Something from the Teaching of John Paul II. 2. Something from the Teaching of Benedict XVI.

In the present contribution I will try to show how throughout my career as a physicist and teacher of philosophy of science and theology I realized what contemporary sciences owe to the powerful synthesis of St. Thomas Aquinas and how they are rediscovering his results in a new fashion.

The paper will be organized as follows. In §I, I offer a sort of sketch of my “cultural journey”. In §II an example of the recent queries and results of computer science is viewed in the light of a sentence of Aquinas. §III offers a view on the human personality of Thomas and the providential context he lived in. §IV addresses the crisis of realism. §V and VI are concerned with his epistemology and its emergence in current scientific problematics. §VII deals with the sapiential view in the Magisterium of St. John Paul II and Benedict XVI concerning science and reason.

I. A SORT OF “AUTOBIOGRAPHICAL” INTRODUCTION

When I met Prof. Giuseppe Tanzella-Nitti, for the first time in the late nineties of the 20th century, he showed me his project of a wide “interdisciplinary” dictionary of science and faith. The plan of the work would have involved about one hundred authors each of one provided, at the same time, of a specific scientific competence on his own discipline, and a philosophical and theological background. The project soon appeared to me so fascinating that I accepted to be engaged as a co-editor and as author of some of the entries.

In the *Introduction* of the *Dizionario Interdisciplinare di Scienza e Fede*¹ we explained what would be intended by the word “interdisciplinarity” according to the perspective of the job.

¹ The Dictionary was printed in Italian by Urbaniana University Press, Rome 2002; on line disf.org and partially translated into English, on line, on inters.org.

Let us clarify that, in this work, “interdisciplinarity” does not simply mean the mere comparison of what different disciplines immediately say about a common object, nor does it mean the mechanical “addition” of the respective contents of the various sciences regarding the same object. Dealing with an “interdisciplinarity” intentionally addressed within the framework of the relationship between science and religion (specifically a Catholic *weltanschauung*), we have tried to position ourselves in the perspective of the unity of knowledge. A unity which is based on a sapiential organization of thought, in which the different disciplines find, on one hand, a common reflection on the foundations of their own knowledge. [...]

This approach seems particularly favored, in our days, by the new issues arising from the sciences, increasingly working towards developing a *Theory of foundations*, a theory which, in a modern key, approaches as if for the first time, questions that are also classical in Greek and medieval logic and metaphysics. At the same time, philosophical and theological disciplines increasingly need to consider that more systematic, communicable, and universal approach, which certainly finds a powerful and significant exemplification in the sciences.²

On developing the job, it more and more appeared clear to us that the medieval logic and metaphysics, especially according to the synthesis elaborated by St. Thomas Aquinas, and if suitably rewritten in today's scientific language and formalism, could be a true candidate for preparing a *Theory of foundations* of contemporary sciences. After thirty years of intensive research, developed in the environment grown around the *DISF* (disf.org), the *INTERS* (inters.org) and the *SISRI* (sisri.it),³ I am now convinced that the former intuition was right.

II. A MEANINGFUL EXAMPLE

Before entering the core of my article, I want to offer a meaningful example confirming my former idea. Recently a book of mine devoted to physical mathematical topics (not philosophy or theology!) – which just begins reporting a quotation of a text by St. Thomas – was accepted for publication by an international scientific publisher

² *Introduction*, 9. Translations into English of Italian texts in this article are mine.

³ The *SISRI* (sisri.it) is a school for young graduates and researchers who are interested in an interdisciplinary approach to the sciences concerning their own jobs, according to the perspective of the *DISF*.

having passed the approval of three independent referees.⁴ Only a few years ago a similar quotation would have been surely rejected as not suitable in a scientific book!

I want to detail here that Thomas' quotation, followed by some of my comments, seems to emerge in the most recent acquisitions in computer science, as testified by two of the chief actors of the debate in information science.

Here is the quotation: «There is no science on singulars (*scientia non est de singularibus*)».⁵

In fact, human science is a *knowledge through universals*. Since human intellect acquires its knowledge abstracting from matter the universal “form” organizing each singular “matter” body. So, our mind, being “immaterial”, does not know singulars, while our senses do, being “material” as part of our material body.

Surprisingly the latter principle, together with the notion of *information*⁶ – beside the notions of *whole* and *parts*, *chance*, *order* and *finality* and some other ones – seems to be attained in some way, at least in some of its aspects, by our contemporary logicians, mathematicians and experts of *information theory*. Therefore, a genuine interest in Aristotle's and Aquinas' works has arisen within the most advanced scientific research fields.

In terms of today's informational logic, knowing universally appears to mean the capability to find a *law* or an *algorithm*,⁷ the string code of the latter being shorter than the list of all individual entities

⁴ A. STRUMIA, *From Fractals and Cellular Automata to Biology. Information as Order Hidden within Chance*, World Scientific, Singapore 2020 (www.worldscientific.com/worldscibooks/10.1142/11743). The following in the present section refers to the *Introduction* of the book (1-4).

⁵ THOMAS AQUINAS, *In Metaphys.*, Lib. 2, lec. 4, n. 8 in *Index Thomisticus* (www.corpusthomicum.org), [All the following quotations of St. Thomas are from *Index Thomisticus* online; the English translations from Latin text are mine].

⁶ The notion of *information* was somehow perceived by Aristotle and Medieval authors like Thomas Aquinas and their followers and it is recognizable by us in what they called “form (*forma*)”.

⁷ «An *algorithm* is a sequence of operations capable of bringing about the solution to a problem in a finite number of steps» (E. SARTI, *Information, notion of* [cfr. <https://inters.org/information>], §V).

when they are singularly collected into a *set*. So modern science seems to have rediscovered, in some sense, the ancient Aristotelian-Thomistic principle according to which not all the entities may be “described” (logic, cognition, science) or “built” (ontology, metaphysics, physics) by an *algorithm* (a string shorter than the list of individuals). In fact, there are entities, the string describing which cannot be other than the list of each single element (*incompressible* string). Or, in terms of propositions, not any proposition (string) is “decidable” (by means of a theorem) within an axiomatic system, since it cannot be reduced to the string of the axioms, according to the well-known Gödel’s undecidability theorem.⁸

Only a divine mind can know all singular details characterizing an individual entity. While human mind knows through universals, so it cannot find an algorithm describing all entities (*Whole Theory* or *Theory of Everything*) and all their features. Only divine mind which knows/creates each single entity, both according to a universal form and to each individualizing matter, is able to catch all singular details.

Aquinas offered a logical-metaphysical explanation of such a difference between human and divine science.

The reason for this will be clear if we consider the difference between the relation to the thing had by its likeness in our intellect and that had by its likeness in the divine intellect. For the likeness in our intellect is received from a thing in so far as the thing acts upon our intellect by previously acting upon our senses. Now, matter, because of the feebleness of its existence (for it is being only potentially), cannot be a principle of action; hence, a thing which acts upon our soul acts only through its form; consequently, the likeness of a thing which is impressed upon our sense and purified by several stages until it reaches the intellect is a likeness only of the form. [...]

On the other hand, the likeness of things in the divine intellect is one which causes things; for, whether a thing has a vigorous or a feeble share in the act of being, it has this from God alone; and because each thing participates in an act of existence given by God, the likeness of each is found in Him. Consequently, the immaterial likeness in God is a likeness, not only of the form, but also of the matter. Now, in order that a thing be known, its likeness must be in the knower, though it need not be in him in the same manner as it is in reality. Hence, our intellect does not know singulars, because the knowledge of these depends upon matter, and the likeness of matter is not in our intellect. It is not

⁸ See K. GÖDEL, *On formally undecidable propositions of Principia Mathematica and related systems I*, in *Collected Works*, vol. 1, edited by S. Feferman, J.W. Dawson, W. Goldfarb, C. Parsons, and W. Sieg, Oxford University Press, New York 2001, 144-195.

because a likeness of the singular is in our intellect in an immaterial way. The divine intellect, however, can know singulars, since it possesses a likeness of matter, although in an immaterial way.⁹

The sequence of such singular elements in a whole appears to us as completely random, since we cannot – *in principle* and not just because of technical difficulties – deduce by a rule (*algorithm*) any of the next element starting from the knowledge of the previous ones. But the datum of the incompressibility of a string, which we perceive as randomness, does not mean non-sense of that string, but simply that it is self-explained being the reason to itself; hence, being a fundamental law, though a rather complex one, it needs no further explanation. As Gregory Chaitin has observed:

for example, a regular string of 1s and 0s describing some data such as 0101010101... which continues for 1000 digits can be encapsulated in a shorter instruction “repeat 01 500 times”. A completely random string of digits cannot be reduced to a shorter program at all. It is said to be algorithmically incompressible.¹⁰

That notwithstanding, in some relevant and not so rare circumstance, the whole may reveal an order and an organized structure capable to perform special activities (*operations*) as it happens in living systems, or in some physical and chemical complex systems. At present it seems that we do not know any compressed string (*law* or *algorithm*) capable to generate the whole of the actual sequence of the genetic code of a living being and we are compelled to list its individual elements one after the other as if they were provided randomly by nature. Something similar happens in the context of arithmetic when we deal with *prime numbers*, the sequence of which appears randomly distributed into the *ordered set* of natural numbers.

An intensive discussion, somehow similar to a medieval dispute, is animating the scientific world about the logical consistency of the idea of a *Theory of Everything*.

⁹ THOMAS AQUINAS, *De veritate*, q. 2, a. 5co.

¹⁰ G. CHAITIN, *Information theoretic incompleteness*, World Scientific, Singapore 1992, 141.

A relevant example of different opinions about the matter is offered by the contemporary debate between Stephen Wolfram and Gregory Chaitin. Wolfram is convinced that

in the end it will turn out that every detail of our universe does indeed follow rules that can be represented by a very simple program – and that everything we see will ultimately emerge just from running this program.¹¹

Wolfram's conviction seems to arise by his deep experience with *cellular automata*, which may evolve into very complex structures, even being governed by very simple algorithmic rules.

In the existing sciences whenever a phenomenon is encountered that seems complex it is taken almost for granted that the phenomenon must be the result of some underlying mechanism that is itself complex. But my discovery that simple programs can produce great complexity makes it clear that this is not in fact correct. And indeed in the later parts of this book I will show that even remarkably simple programs seem to capture the essential mechanisms responsible for all sorts of important phenomena that in the past have always seemed far too complex to allow any simple explanation.

It is not uncommon in the history of science that new ways of thinking are what finally allow longstanding issues to be addressed. But I have been amazed at just how many issues central to the foundations of the existing sciences I have been able to address by using the idea of thinking in terms of simple programs.¹²

While on the contrary Chaitin considers random strings (*incompressible* strings) as admissible in nature as undecidable propositions exist in an axiomatic system.

Wolfram has a very different view of complexity from mine. [...] Wolfram's view is that simple laws, simple combinatorial structures can produce very complicated unpredictable behavior. π is a good example. If you didn't know where they come from its digits would look completely random. In fact, Wolfram says, maybe the universe contains non randomness, maybe everything is actually deterministic, maybe it's only pseudo-randomness. And how could you tell the difference? The illusion of free will is because the future is too hard to predict but it's not really unpredictable.¹³

¹¹ S. WOLFRAM, *A new kind of science*, Wolfram Media Inc., Champaign 2002, 545.

¹² *Ibidem*, 4.

¹³ G. CHAITIN, *The unknowable*, Springer-Verlag, Singapore 1999, 113.

I performed a deeper investigation on these and related topics in some previous books and papers.¹⁴ In the following of the present contribution I will freely pick up from my previous writings.

Now, after the latter, almost “autobiographical” preface, in the next §III, I will approach the personality of St. Thomas Aquinas as a man of science can do nowadays following the suggestions of the most recent researches.¹⁵

III. ST. THOMAS AQUINAS: THE SAINT, THE DOCTOR, THE GENIUS

The extraordinary scientific-philosophical-theological synthesis of St. Thomas Aquinas has a unique value in itself, not only for the Catholic Church, of which he is the *doctor communis*, but for culture, philosophy and science of all humanity in all times. This is not an excessive evaluation. In fact, the Thomistic synthesis cannot be considered simply the fruit of the work of a man who was at the same time a genius, a learned man – even a doctor of the Church – capable of *thinking big* and a saint – the which in itself would be enough to consider him an extraordinary man – but it must also be recognized as the work carried out by the *right man* at the *right time* in the *right place*. The occurrence of this coincidence of favorable conditions can only be traced back to the provisions of divine Providence.

Some men may be geniuses, more or less recognized, but endowed with too specialized knowledge – as has normally happened in the world closest to us to the characters we consider geniuses – to be able to *think big* so as to be capable of a synthesis between science and philosophy.

¹⁴ Cfr. STRUMIA, *From Fractals*; IDEM, *Complexity Seems to Open a Way towards a New Aristotelian-Thomistic Ontology*, «Acta Biomedica» 78 suppl. 1 (2007), 32-38; IDEM, *The Problem of Foundations. An Adventurous Navigation from Sets to Entities From Gödel to Thomas Aquinas*, Createspace, Charleston 2012; IDEM, *Information as Order Hidden within Chance: An Application to Biology*, «Physical Science & Biophysics Journal» 3 (2019) 000126-000140; IDEM, *Information Drives Chance to Order and Organization: Applications to Mathematics, Physics and Biology*, «Newest Updates in Physical Science Research» 10 (2021) 116-154; *Complexity: the Role of Information in Organizing Chance*, in *Organisms*, «Special Issue: Where is Science Going?» 5 Nr. 2 (2021) 77-85; IDEM, *Keywords in Contemporary Science. Information, Self-Organization, Chance, Intelligence, Self-Awareness*, Generis Publishing, Wilmington 2022.

¹⁵ Cfr. as an Italian source for some of the next sections, my *Prefazione* a TOMMASO D'AQUINO, *Commento a il Cielo e il Mondo*, Edizioni Studio Domenicano, Bologna 2022.

And in many cases, they may also be devoid of that Christian faith, fully Catholic, which allows them to also involve theology in their own vision, and sometimes even to understand it as saints do. It should then be noted that the fragmentation of knowledge cannot be compensated only by forming a team or a working group: synthesis is always achieved by one person and not by a group. A group of people, however, can usefully collaborate in the diffusion and application of the method of a master who has the synthesis.

Others may be great saints, but not be men or women of study, neither geniuses nor scholars. Others, again, may indeed be geniuses, and even capable of *thinking big* and saints, being in a certain sense the *right man* (a very rare circumstance in any case!), but not having found themselves in the *right place at right time*.

Thomas was blessed – in addition to his extraordinary human qualities, his sanctity – with the favorable historical condition of being in the *right place at the right time*, belonging to a movement of religious life as the Order of Friars Preachers, founded by St. Dominic – within which at that precise time he was received and valorized. And the wonderful fruit of his mind and his life, was assimilated and acquired, over time, by the universal Church, since he was found in the *right place at the right time*. More he met the *right master*, St. Albert the Great, scientist, philosopher and theologian who provided him the right background of the Aristotelian thought.

It seems possible to rightly say that such a *fullness of time* (adapting by analogy the Paul's expression of *Gal 4,4*) can hardly be repeated in history, and also for this reason St. Thomas has always been proposed by the Church as an irreplaceable master of thought and not just as a great man from the past who is no longer current.

IV. THE PHILOSOPHICAL CRISIS OF REALISM AND METAPHYSICS

But what did it happen so that modern philosophical thought could turn so fiercely against realism and metaphysics, or rather against Thomism, so that theology often abandoned St. Thomas as a leading guide?

If it is not an exaggeration to say that a good part of modern philosophical thought has developed by progressively distancing itself from

Christian Revelation, to the point of reaching explicit contrasts,¹⁶ due to a deliberate cultural choice, as a sort of philosophical “original sin”, it must be said that such a *choice against* has its roots in a reductive, and therefore inadequate, way of addressing at least two major questions which are strictly philosophical.

The former consists in the loss of the ability to formulate a solid logical-metaphysical theory of *analogy*, progressively reducing the latter to a pure linguistic metaphor.

The latter concerns what we today call the *cognitive sciences* and consists in the disappearance of the cognitive doctrine of *abstraction*.

Both terms (*analogy* and *abstraction*) have a *strong* technical meaning in Thomism which no longer corresponds to the *weak* one that modern language attributes to them.

The loss of analogy, not only of language (analogy of names), but also of the being itself (analogy of entity), has ancient roots in the *univocal logic* of nominalism of the Oxford School (prepared by Roger Bacon and Scotus,¹⁷ and implemented by Ockham) who saw the demonstrative power in the univocality of mathematics¹⁸ and prepared the birth of modern Galilean science and modern mathematical physics.

¹⁶ Cfr. JOHN PAUL II, Encyclical Letter *Fides et Ratio*, September 14, 1998, n. 46.

¹⁷ In a particularly hermetic passage, Scotus declares that «being is univocal to all, but to concepts that are not simply simple, it is univocal in terms of *quidditas*, while to simply simple concepts it is univocal in the sense that it is determinable or nameable, and not in the sense that it is predicated of them quidditatively, because this includes contradiction» (G. DUNS SCOTUS, *Ordinatio I*, d. 3: quotation in *ibidem*, 1374).

¹⁸ On the univocity of mathematics R. Bacon wrote: «Now in mathematics, it is possible for us to arrive at a complete truth without error and a universal certainty without shadow of doubt, since it is proper to proceed with *a priori* proofs, for proper and necessary causes. And proof, as we know, leads to truth. [...] Only in mathematics are there proofs in the true sense of the word for proper causes; and therefore, only within the field and by virtue of mathematics can man arrive at truth. [...] Thus, in mathematics alone is full certainty achieved. Therefore, it follows that if we wish, as is our duty, to arrive at a certainty that excludes all doubt and at a truth that excludes all error in the other sciences, it is necessary that mathematics becomes the foundation of our knowledge, from which we can achieve complete certainty and truth even in the other sciences» (R. BACON, *Opus Maius*, quoted in Italian in AA.VV., *Grande antologia filosofica*, vol. IV, Marzorati, Settimo Milanese 1989, 1299-1300).

More, the misunderstanding of the cognitive theory of abstraction has introduced the doubling between “reality” and its “representation” at the level of the mind which is at the basis of all the epistemological dualisms of modern philosophy, from Descartes, Locke, Berkeley and Hume, up to the present day. On the contrary, the Thomistic approach recognizes in a same “form” (*forma*) actualizing real entities’ “matter” the ability to actualize also the “possible intellect” (*intellectus possibilis*) – almost as if it were a sort of “matter” suitable for knowledge of the universal, once the form has been “abstracted” from the physical matter of things by the “active intellect”.

Epistemological dualism makes cognitive realism inconceivable and leads inevitably to today’s relativism, fading any notion of truth. In such a perspective, there is no place, except in the history of philosophy, for Thomas Aquinas, who is thus inevitably placed among the “naive realists” and the “outdated geniuses”.

V. THE EPISTEMOLOGY OF ST. THOMAS AQUINAS

Let us now consider the ancient science in the Aristotelian-Thomistic conception.¹⁹

a) Definition

According to the Greek conception (mainly Aristotle’s one) and then the medieval one (specifically, St. Thomas Aquinas’), science is *cognitio certa per causas*, *i.e.*, knowledge by demonstration (in other words, mediately evident) and explicative knowledge.

b) The subdivisions of science

The sciences, adopting our modern terminology, were divided fundamentally into two categories:

- i) the *deductive sciences* or the sciences of explanation, such as metaphysics and mathematics, whose deductive instrument was logic; today we call them “formal sciences”;

¹⁹ For the subdivision of medieval sciences and a comparison with modern ones see, *e.g.*, J. MARITAIN, *An Introduction to Philosophy*, Continuum International Publishing Group Ltd., London 2005; IDEM, *Distinguish to Unite, or The Degrees of Knowledge*, Geoffrey Bles: The Centenary Press, London 1937, Part I, chap. 2.

ii) the *inductive sciences* or the sciences of verification, such as the empirical natural sciences; today we call them “experimental sciences”.

But science, in the full sense of the term, is only that of the first type because it is linked to known principles.

c) The *foundations* of science

In addition, for both the ancients and the moderns, a science requires *foundations*, that is, points of departure that cannot be demonstrated by that science itself; such foundations must remain undemonstrated because:

- *either* they are demonstrated as true within the sphere of a more universal, science,
- *or* they are accepted as true without a demonstration, as hypotheses (by convention or because they are indispensable).

In the first case, we have sciences that lead to *necessary truths*; in the second, only *hypothetical (ex suppositione)* sciences, which are formally correct, but not necessarily true: they are pure instruments of calculation or prediction, or at most, sciences of verisimilitude.

It should be fairly clear that contemporary sciences fall into this second category. Therefore, the ancient concept of science encompasses, *in principio*, also the modern sciences, even if modern science has been *de facto* developed *after* ancient science.

d) The organic structure of epistemology

In the philosophical framework, from the epistemological viewpoint, the sciences were organized hierarchically, according to the different levels of *abstraction*.

- i) On the *first level* were the *physical* sciences, which disregard individuality of bodies, and study their motion (evolution over time in a wide sense) in general.
- ii) on the *second level* were the *mathematical* sciences, which disregard the real matter stuff of the bodies and the motion, and study their ideal quantitative relations (numerical, extensive, etc.).

iii) on the *third level* were the *metaphysical* sciences, which disregard also from the quantitative and relational characteristics of the bodies, and study the *principles of being as being*.

According to this organic and hierarchical epistemology, each discipline serves as the *foundation* for a dependent one.

Every higher discipline forms a principle of regulations for those inferior to it. Metaphysics, since it deals with the supreme reasons of being, should be the regulative science par excellence: *scientia reatrix*. But mathematics is also a deductive science, a science of the *propter quid*. It therefore also tends to regulate the lower ranges of knowledge, if not to usurp the position of metaphysics itself.²⁰

The sciences of the highest level, then, do not have foundations demonstrated by other sciences, but are founded upon evident principles, in the sense that they are indispensable principles, because without them it is not possible to elaborate any form of knowledge.

e) The placement of Galilean science

In the modern vision of science, and according to the present terminology, the distinction between formal and experimental sciences, continues to be valuable. But while the epistemological status of the logical-formal disciplines (like mathematics) has passed nearly unharmed – indeed, it has become ever more accentuated (apart from the significant empowerment of its formalism and the enormous enrichment of its results) throughout the centuries –, what occurred in the sphere of the observational sciences has had a special emphasis.

We have now placed the epistemological status of Galilean science within the epistemological picture of the medieval sciences. The Galilean science is characterized by its assumption of mathematics, and no longer metaphysics, as *scientia reatrix* (*foundational science*), that is, as a deductive science through which we may formulate the definitions and deduce the explanations of observation data.

According to an Aristotelian-Thomistic perspective, we may highlight how reality, as it is approached by the Galilean science, is known mainly under the two aspects (*accidents*) of “quantity” and “relation”.

²⁰ MARITAIN, *Distinguish to Unite*, 51.

These aspects are relevant, but accidental, with respect to “substance”, and non-exhaustive of its being.

When one considers Galilean science as the only kind of possible types of sciences, he or she is led to attribute to quantity and relation a sort of “substantial consistency” as if the object were exhausted by what mathematical science can know. One thus tends to make mathematics a substitute for metaphysics, so reducing the being itself only to quantity and relation.

The main character of Galilean and modern science consisted in the *mathematization of the experiments* and of the explicative hypotheses. A mathematization that at Galileo’s times was carried out above all as a *geometricization of science*.²¹

Surprisingly, however – but not too much, since human reason has its own irrepressible nature, its irreducible logic, and the reality that surrounds us has a metaphysical objectivity that tends to re-emerge sooner or later – current sciences, more than philosophy (and therefore even more than theology!) seem to rediscover Aristotle and Thomas, even if in a largely unaware way. The symptomatic example I referred to in §I is only a first suggestion. And it is at this point that the Thomistic synthesis becomes interesting for those who work in the scientific fields. Its logic, physics and metaphysics no longer appear as something belonging only to the past, or as an optional spiritual supply for those who want to save realism at all costs. On the contrary, Thomas presents himself as the one who suggests the way to develop today’s *Theory of Foundations* of the sciences. Even if the details of his physical or cosmological theories are no longer relevant – being dependent on a qualitative description of nature and the cosmos, which nowadays are outdated – the *foundational* aspects (logical and metaphysical) of his theoretical reflection exhibit an extremely significant relevance today.

However, we must also keep in mind the fact that Scholasticism, in Galileo’s time, was rather decadent and deteriorated, and was no longer that of Thomas. While the latter’s epistemology already envisaged a mathematical physics placed among the *middle sciences* (*scientiae mediae*). It was only necessary for the time to be ripe for it to be developed

²¹ Cfr. A. KOYRÉ, *Études d’Histoire de la pensée scientifique*, Gallimard, Paris 1971, 83 (English translation mine).

concretely, as indeed began to be done with Kepler, Galileo and above all Newton. Thomas himself had said, regarding Ptolemaic astronomy, precisely in the *Commentary on "De caelo"* (book II, lecture 17, n. 451):

It is not necessary that those hypotheses that [the ancient astronomers] elaborated are true: in fact, although, having made these suppositions, they have saved the phenomena that appear, however it must not be said that these suppositions are true, because perhaps with another system not yet intuited by men, what appears regarding the stars is saved.

Thus, it must be recognized that if Thomas comments on Aristotle, indeed he sometimes corrects him and always interprets him appropriately in the light of reason and with the wisdom that comes from the faith in Revelation.

The rejection of a decadent Scholasticism was accompanied by the rejection of Aristotle in its entirety and a progressive distancing of modern science from Thomistic thought left the latter as relegated to theology. But today a certain Aristotelianism is reappearing in the most advanced scientific research.

Here I will limit myself to the two *keywords* I referred to before, namely *analogy* and *abstraction*, to document it with some examples.

More impressively one may realize as according to the epistemology of St. Thomas a *wider notion of science and rationality* was conceived by him, rather than the modern one. A frame within which the current mathematized observational sciences can be naturally hosted, together with logic and with the simply observational and taxonomic disciplines. A similar frame of sciences, analogically structured, allowed him to conceive also metaphysics in the role of what today we call a *Theory of Foundations* of all sciences.

In the commentary to Aristotle's *Second Analytics* Thomas offers a more synthetical picture of his epistemological frame, which he has widely exposed in his Commentary to *Boethii de Trinitate* at quaest. 5, artic. 3, ad 6um.

Some sciences are purely mathematical: these abstract by reason from sensible material, such as geometry and arithmetic; others are intermediary sciences: these apply the mathematical principles to sensible material, as optical geometry applies the principles of geometry to the visual ray and music applies the principles of arithmetic to sensible sounds.²²

²² THOMAS AQUINAS, *In post. Anal.*, Lib. I, lec. 41.

As James A. Weisheipl observed:

Thomas admits that there are forms of mathematical knowledge that study matter and motion, such as astronomy, mechanics, optics and even musicology. These sciences he calls *mediae*, inasmuch as they depend upon pure mathematics for the principles they need and upon the natural sciences for the data upon which to work. Thomas, it seems, is the only medieval philosopher to have used the expression *scientiae mediae* in this sense. [...]
He understood very well the nature of applied mathematics, at least for what concerns its philosophical structure.²³

Two central questions arise, upon which the development of modern thought in relation to Aristotelian-Thomistic thought depends: i) the question on *analogy*; ii) the question on *universals*.

The mathematization furthermore will favor the abandonment (and thus, the lack of understanding) of *analogy* in favor of *univocity*, with the consequent reductionism of the method of the sciences.

VI. TODAY'S SCIENCES IN FRONT OF ST. THOMAS. THE SEARCH FOR A FOUNDATION THEORY AS A METAPHYSICAL QUEST

1. *The Sciences Seem to Rediscover Analogy*

a) Analogy emerging from mathematical logic

Mathematical language and thought are *universal* and have always been characterized by a rigorous *univocity*, and their strength seems to lie in this: the same symbol (*name*) in the context of the same theory must correspond to one and only one definition that identifies an abstract universal notion: *e.g.*, number, triangle, relationship, function, etc. This seems to have always been the case until the 19th century, when mathematics expanded and redefined its object of investigation, aspiring to become something close to what scholars today call *formal ontology*.

This began to be achieved with the *Set Theory* of Georg Cantor²⁴ who had posed the problem of how to treat *infinity*, both as a multiplicity

²³ J.A. WEISHEIPL, *Friar Thomas d'Aquino: His Life, Thought and Works*, The Catholic University of America Press, Washington 1983, 136.

²⁴ G. CANTOR, *Gesammelte Abhandlungen Mathematischen und Philosophischen Inhalts*, ed. by E. Zermelo, Springer, Berlin 1932. For a review on Cantor's studies on sets and infinity problem one can see J.W. DAUBEN, *Georg Cantor, his mathematics and philosophy of the infinite*, Harvard University Press, Cambridge, Mass. and London 1979.

and as an entity with its own overall unity. He will arrive at his *Theory of transfinite numbers* starting from the examination of collections of objects (*sets*) in their various ways of being implemented. This transition from numbers to collections of objects of any nature has completely redefined mathematics, which from *Theory of numbers*, with all its applications (arithmetic, algebra, mathematical analysis, analytical and differential geometry, etc.), has become a *Theory of collections*. The notion of *collection* is much closer to the universal notion of *being (ens)* in the sense of Aristotelian-Thomistic logic and metaphysics than *numbers* and their applications. And it is just enough to bring out, from within mathematics, the paradox that Aristotle and Thomas knew quite well, even in a different formulation, as a consequence of the contradiction that arises from believing the notion of *entity (ens)* as a genre (*genus*), with the consequent need to recognize that *being is said in many ways (analogia entis)*.

Cantor already realized that the notion of *universal set*, or *collection of all collections*, could not be treated as a *set* in the *same sense* in which the sets within his theory were considered, because this entailed contradiction. These results, as well as other new paradoxes of logic and mathematics, were also obtained later by Bertrand Russell and by other mathematicians and logicians. As Józef Bochenski observed the impossibility, noted by Aristotle, of speaking of being as a univocally defined universal *genus (set)*, without incurring a contradiction, is linked precisely to what today's mathematicians know it as

the problem of the universal class. He solved it with brilliant intuition, though, as we now know, with the help of a faulty proof. The relevant passage occurs in the third book of the *Metaphysics*: "It is not possible that either unity or being should be a single genus of things; for the *differentiae* of any genus must each of them both have being and be one, but it is not possible for the genus taken apart from its species (any more than for the species of the *genus*) to be predicated of its proper *differentiae*; so that if unity or being is a genus, no *differentia* will either have being or be one" [B3, 998b 22-27].²⁵

Russell solved another paradox, which today bears his name, by hypothesizing that a set can be implemented in several different ways, which were called "types" (*Theory of types*). Kurt Gödel introduced two distinct

²⁵ J.M. BOCHENSKI, *A History of Formal Logic*, University of Notre Dame Press, Notre Dame 1961, 54.

definitions to characterize two different ways of implementing a collection and eliminate the contradiction, that of *proper class*, which we can correlate, to a certain extent (*quodammodo*), to the Thomistic notion of *transcendental* (such as *ens*), and that of *improper class*, which we can connect to the univocal notion of *universal genre*.

Having reached this point, Gödel even recognized the indispensable need to arrive at unconventional, but true and objective, foundations of mathematics itself. Here are some of his considerations.

Research in the foundations of mathematics during the past few decades has produced some results which seem to me of interest, not only in themselves, but also with regard to their implications for the traditional philosophical problems about the nature of mathematics. [...]

This fact is encountered in its simplest form when the axiomatic method is applied, not to some hypothetico-deductive system such as geometry (where the mathematician can assert only the conditional truth of the theorems), but to *mathematics proper*, that is, to the body of those mathematical propositions which hold in an absolute sense, without any further hypothesis. There must exist propositions of this kind, because otherwise there could not exist any hypothetical theorems. [...] For example, some implications of the form: “If such and such axioms are assumed, then such and such *a* theorem holds” must necessarily be true in an absolute sense. Similarly, any theorem of finitistic number theory, such as $2 + 2 = 4$, is, no doubt, of this kind. Of course, the task of axiomatizing *mathematics proper* differs from the usual conception of axiomatics insofar as the axioms are not arbitrary, but must be correct mathematical propositions, and moreover, evident without proof.²⁶

He could hardly have encountered contemporary philosophy starting from such an explicit demand for realism. While he could have found an adequate interlocutor in St. Thomas. All this tells us how urgent and fascinating it is to open an interdisciplinary research work that connects two cultural worlds: the scientific one and the Aristotelian-Thomistic one, which still know little about each other. It is a question of understanding interdisciplinarity not just as an extrinsic comparison between parallel disciplines, but as an investigation into their *common foundations*. After *Set Theory*, the possibility of taking the further step of developing a *Theory of Entities*, expanding mathematics until it becomes

²⁶ K. GÖDEL, *Some basic theorems on the foundations of mathematics and their implications (1951)*, in IDEM, *Collected Works*, vol. III, edited by S. Feferman, J.W. Dawson Jr., W. Goldfarb, C. Parsons, R. Solovay, Oxford University Press, New York-Oxford 1995, 304-305.

a *Formal Ontology*, seems to be now ripe. An operation that reverses the direction of Cartesian reductionism, which instead tended to restrict metaphysics by bringing it back to mathematics.²⁷

b) Analogy emerging from the sciences of complexity

i) Structure of matter: information and material support

Another emergence of the analogy of being was found at a more experimental than at theoretical level, in physics, chemistry, biology, etc., when it began to be taken into consideration what – since the sixties of the twentieth century – it was called, in scientific and popular literature, “complexity”. By *complexity* we can mean, approximately, the irreducibility of a system (physical, chemical, biological or other), considered as a *whole*, to the *sum of the parts* from which it can be constituted and into which it can be decomposed. We call such irreducibility a *structural complexity*. This irreducibility has led to the rediscovery of the ancient metaphysical question of the *whole-parts relationship* in an entity. Hierarchical levels of organization of a system have been discovered which require some *information* that orients (*finalism*) the organization of their structure and of their temporal evolution. In the latter teleonomic sense we speak also of a *dynamical complexity*.

The notion of *information* which has been gradually developed – by physicists, for complex systems of a mechanical and thermodynamic nature interacting with the environment (*dissipative systems*); and by biologists, for systems capable of self-organization, growing and reproducing themselves (*living organisms*) – is compared with the Aristotelian-Thomistic notion of *form*. The form is understood as an immaterial principle that is responsible for the properties of a complex system in its totality, which are not deducible from the properties of its separate parts. In this case, the analogy of the entity is manifested in the fact that a single principle (*e.g.*, matter) is not enough to account for experimental observations. So a second principle (form, information), which is of a different nature, is required. What we observe is the result of the action of a form acting on its individual matter support. Information, being

²⁷ I made a first attempt of a transition from *Set Theory* to a *Theory of Entities* in my book *The Problem of Foundations. An Adventurous Navigation*.

immaterial is, by definition, not reducible to matter; the matter support being unorganized and purely potential is irreducible to pure information; the observed object is irreducible either to pure matter or to pure information.

Therefore, there has been talk of a *crisis of reductionism*, or the impossibility of a scientific explanation that reduces everything to a single one explanatory principle.

The fact that a whole (*complex system*) cannot be broken down into its parts without being destroyed as a whole – which is particularly evident in a living organism, but already present in mechanical, thermodynamical and chemical systems – has a reason that today it is also understandable from the point of view of mathematics, thanks to the fact that the function that describes it is a solution of a system of *non-linear equations*. For the latter, in fact, it is known that the sum of several solutions is generally not a solution and *vice versa*.

ii) The “whole-parts” relationship and the distinction between “potency” and “act”

The problem of the “whole-parts relationship”, from another point of view – which presents itself, for example, once again, in *Set Theory* – also reopens the way to the consideration of the Aristotelian-Thomistic theory of the distinction between “potency” and “act”. In *Set Theory*, in fact, a primitive relation is considered, from a logical point of view, which is that of belonging (denoted with the symbol \in) of an entity to a collection, which identifies an integral part that is “in act” in the collection, and that of inclusion of a set in another set (denoted by \subset), which indicates a “potential” part in the collection, as it is not actually separated from the other parts, but can become so if it is cut out by isolating it from the starting collection.

In today’s theories of the physical world we have not yet come to terms with the notions of “act” and “potency”, and the use of these words still has a rather different meaning from the Thomistic one, even if sometimes some attempts at comparison have been made, such as that of seeing in the quantum vacuum a sort of matter “in potency” or even “prime matter”, but until now it has been a matter of what is often called a “spontaneous philosophy of scientists”. However, we must point out that Werner Heisenberg already glimpsed in the wave function of quan-

tum mechanics a sort of rediscovery of the Aristotelian concept of “potency”; an idea that was practically forgotten until recent years in which several authors have seriously taken it back into consideration.²⁸

iii) The dynamics of matter and analogy in causality

“Complexity”, in the sense we give to this word today in the scientific field, seems also to suggest the re-emergence of the doctrine of the four Aristotelian causes, since it is no longer enough to reduce causality in the sciences to the “efficient cause” alone.

- The “material cause” emerges through scientific investigation into the “structure” of matter, in the search for elementary components, no longer conceivable as juxtaposed “elementary” bricks (“parts”) – which, when added together, create a system (“whole”) – but as “states” of a “unified field” (the knowledge of which we are approaching step by step, although we have not yet completed the task).
- The “formal cause” is appearing precisely through the notion of “information”, understood in a sense that, especially in biology, is increasingly approaching the Aristotelian-Thomistic sense of “form”.
- The “final” cause, today – as well as the fact that the important principles of physics can be formulated mathematically through *variational principles*, which are interpreted in a finalistic key (something, moreover, that has been well known for more than a century) –, makes its appearance, above all, in the experimental data, which highlights how complex systems tend to organize their structure in view of operations that they must be able to perform. Such functions are oriented to reach *attractors* which are more and more organized complex systems, up to living organisms. And it is the “information” itself, the “form”, that orients them teleonomically, even if the initial conditions are assigned in a completely random way.²⁹

²⁸ On the “potency-act” interpretation of quantum mechanics one may see, *e.g.*, my paper *A “Potency-Act” Interpretation of Quantum Physics*, «Journal of Modern Physics» 12 (2021) 959.

²⁹ For examples and details, one may see my previously referenced book *From Fractals*.

2. *Cognitive Sciences and the Aristotelian-Thomistic Theory of Abstraction*

The side of “cognitive” sciences directly calls into question the *Theory of Abstraction*, which offers a model that is surprisingly well fitting the results of today’s research in the fields of logic, psychology, physiology and biology with regards the “mind-brain relationship” and more generally “mind-body”. At the same time, with the engineering research regarding what is, more or less appropriately called “artificial intelligence”, with applications to computers and robotics. Once again both “information” and its “material supports” come into play. It is notable to have acknowledged that information, despite needing a material support that conveys it, is to a certain extent independent of the support itself, in the sense that the same information can be transferred from a support to another one without thereby modify its informational content: the information appears to be in a certain way “immaterial”.

The research to understand what intelligence is, capable of managing immaterial universal information that is “abstracted” (*i.e.*, “extracted”) from physical matter, reopens the question of what the “mind” is: whether this is something that emerges from matter when a high level of complexity is reached, or is it something that may sometimes also have an existence autonomous from matter. In the latter case, whether this independence can be detected by studying the operations that the mind is capable of carrying out, such as *abstraction of universal information extracted from matter* itself.

The sciences, in this field of research, have even been temporarily misled by modern philosophical theories which have proven inadequate and have therefore been abandoned by researchers and engineers. Just think of the fact that, initially, by resorting to the philosophy of Hume who considers “universals” as “fading singulars”, computers were instructed to search for the common (“universal”) characteristics of objects of the same kind, allowing a certain margin of error to be tolerated in carrying out the optical recognition of their topological structures. But in this way completely poor and technologically unusable results were obtained. And, therefore, the engineering strategies had to change.

Today there are still two schools of thought debating on which “principle” should be considered as “primary”.³⁰

- i) For some researchers it is matter to be primary and information would emerge as a secondary one from it more or less spontaneously (randomly).
- ii) Others believe, on the contrary, that information should precede matter as a principle capable of structuring and organizing it.

We have certainly not yet reached the point of conceiving the possibility of some kind of form/information capable of existing independently of matter (*spirit*) as it is able to carry out activities that are independent of matter, such as the formation of “abstract universals” and “consciousness”, as Saint Thomas Aquinas argued. However, the scientific path towards this result is more open today than in the past times, at least from a theoretical point of view. Intellectual and scientific honesty will be necessary to achieve it.

3. Some Remarks on Artificial Intelligence

To conclude the present section, I would like to add some considerations on the so-called *Artificial Intelligence (AI)*, so present in public opinion and discussion through the media.

AI was conceived as an idea as early as 1950-55 (by Alan Turing and others). The problem that made it practically unrealizable at that time was the slowness of the first electronic computing machines (*computers*). Today, however, we have: a) very fast machines; and b) a global network (*Internet*) of computers operating together.

This has made Artificial Intelligence possible. It is capable of performing many, if not all, those “processes” of human thought that follow mechanical rules, such as *reasoning*, which is reducible to *calculation (logical calculation)*, and those *sentences (iudicia)* that can be reduced to a comparison between signals produced by some sensors that connect the machine to the external world (*peripherals*) and single pieces of information already stored (object, voice, writing, image recognitions, etc.). But *AI* cannot go beyond those “processes”.

³⁰ See, e.g., R.J. MARKS II AND OTH. (eds.), *Biological information. New perspectives, Proceedings of a Symposium held May 31 through June 3, 2011 at Cornell University*, World Scientific, Singapore 2014.

Therefore, *AI* cannot perform the operations of abstraction of universal information of a new concept, nor those specific to self-consciousness. This is explicitly stated by *AI* experts themselves.³¹

AI is made up of algorithms (learning, expert systems, use of probability, fuzzy logic based on true/false established with probability *P*).

Manifestly, together with evident advantages which may improve the quality of life, *e.g.* in medical applications, *AI* improperly used without reference to correct moral rules implicates also serious dangers, the severity of which increases with its power and efficiency. Among these, the following should be considered.

- i) The power to decide the destiny of the world is increasingly concentrated in the hands of a few individuals.
- ii) The unreliability of many contents (*fake news*) present on the *Internet*, which the system assumes to be true and allows for the production of new ones.
- iii) The psycho-emotional dependence on *avatars* (a phenomenon already present even among experts).
- iv) The unpredictability of a *complex system* like the *network* and *AI* (this is a consequence of results demonstrated in mathematics in the 20th century for *complex non-linear systems*).
- v) The danger that people use their intelligence by limiting themselves to reasoning like a computer, like *AI*, without understanding what they are doing, delegating decisions to automatisms.

It is clear that the problems cannot be solved by simply *plugging the holes!* The problem of the livability of a society, the problem of man, of re-educating consciousness, goes much deeper. We need a remedy that fundamentally solves the problem of man, a *Salvation*. Thus, the word *Salvation* regains all its anthropological and social significance and is not relegated as an optional and private choice for the devout.

The response of Faith offered by Revelation to the *question on Salvation* becomes irrevocable because it is indispensable, since it is demand-

³¹ See, *e.g.*, D.K.W. MODRAK, *Aristotle the first cognitivist?*, «Apeiron» 23 1 (1990) 65; F. FAGGIN, *Silicon. From the Invention of Microprocessor to the New Science of Consciousness*, Waterside Productions, Oxford 2020, Appendices IV and V; E. FEWSER, *Aristotle Revenge. The Metaphysical Foundations of Physical and Biological Science*, Editiones Scholasticae, Neunkirchen-Seelscheid 2019.

ed by reason itself, under penalty of losing all rationality, of losing everything and everyone. Of losing the right to exist. *Salvation* is accepted as a reparation (*Redemption*) of the justice between man and God the Creator (of the sin against God the Creator!), of the right relationship of man with God (“You shall love the Lord your God”, Mt 22,37) and with other human beings (“You shall love your neighbor as yourself”, Mt 22,39). More of man’s relationship with himself (“as yourself”).

VII. A SORT OF SAPIENTIAL CONCLUSION FROM THE MAGISTERIUM

I dedicate the last section to some texts of the Magisterium³² as a suitable conclusion of my contribution.

The purpose of the Magisterium is not so much to develop a detailed theory regarding the argument it treats;³³ rather, it is to “indicate”, and in some cases “define”, those principles of comprehension of reality (both natural and supernatural) that must be considered indispensable for a correct understanding of the questions under examination whether from the viewpoint of the faith or of reason. In particular, the Magisterium:

does more than point out the misperceptions and the mistakes of philosophical theories. With no less concern it has sought to stress the basic principles of a genuine renewal of philosophical enquiry, indicating as well particular paths to be taken.³⁴

Our purpose in reading passages of the Magisterium is to point out some of these indispensable principles, such that to pose correctly the problem of the rationality and the scientific character of a cognitive method. Then, the task of research comes, the task of identifying a way to develop a proper epistemology emerging from the very scientific issues at hand. Such epistemology, while keeping in mind the indispensable principles, must be capable of giving an answer to the questions posed today by the *Theory of foundations* of the sciences themselves.

³² A wider exposition of the subject examined in the present section can be found in my book *The Sciences and the Fullness of Rationality*, Davies Group, Aurora 2010.

³³ «The Church has no philosophy of her own nor does she canonize any one particular philosophy in preference to others» (JOHN PAUL II, *Fides et Ratio*, n. 49).

³⁴ *Ibidem*, n. 57.

1. *Something from the Teaching of John Paul II*

In particular, we will turn our former attention to the Magisterium of *John Paul II*, who has opened and travelled along a path that permits us to read correctly the path of the modern sciences and the epistemological and sociological reflection on the same. Given his philosophical formation (Aristotelian-Thomistic in its foundations and phenomenological in his approach to man's experience), his method consists in keeping present at the same time the "external" as well as the "internal" aspects of the sciences, and their reciprocal connection. His teaching on such themes:

a) *from without* departs from the *data of experience*, whether on the personal or social level and manages to outline the theoretical issues of the contradictions found in experience.

If the acceptance of certain principles has led to a society that is contradictory and nearly unlivable (for the individual and the community), one has a clear indication that at least some of these principles were erroneous from the beginning. Therefore, it is necessary to change them, or even substitute them, reconsidering the fundamental choices that are at the basis of culture and the concept of science currently in place. If at the basis there has been a multi-secular, anti-metaphysical prejudice, is it not correct to assume that this has been one of the principle causes of the contradiction?

b) From *within* he suggests identifying those problems on the logical and foundational order that obstruct the very development of scientific theories, indicating the intrinsic limits of the model of rationality that has been, until now, considered valid, and searching for a way that would be constructive of a rationality both "widened"³⁵ and open to a dimension that can transcend it, such as faith.

If the journey that departs *from without* is in a certain sense a *via negativa*, and only offers the symptoms of a state of disease, which

³⁵ The "widened rationality" will be a recurrent theme also in the Magisterium of Benedict XVI. See, e.g. the speech *At the Sixth European Symposium of University Professors*, June 7, 2008.

it does not manage to heal, the journey that departs *from within* is instead a *positive way*. It is not a way that merely points out what does not work; it proposes itself as a way that can help to construct this “new rationality”.

With regard to science, the *way* is laid out in the *Speech of John Paul II to Scientists and Students*, given at Cologne on November 15th, 1980. It constitutes a point of reference for many of the later speeches of his pontificate on this topic.

The *internal way* begins to appear more explicitly in some passages of the more recent speeches, since probably because only in the last these years an epistemological reflection arose which shows more evident signs of openness in this sense. It seems that lately, the anti-metaphysical prejudice has begun to diminish and even to yield, due to the scientific method's internal necessities of development. This constitutes a novelty of no little importance, even if for the moment it poses questions only in the most innovative sectors of scientific research, and does not seem to touch the more traditional sectors, which live off the gains of the old methodologies according to a reductionistic and closed epistemology. This diminishing of the anti-metaphysical prejudice is taken into account even less by the world of subjectivist and relativistic philosophy, which has condemned itself to a future without a future. However, it is only a matter of time before it reaches these fields as well: the problem of foundations is inevitable.

The speech at Cologne inserts itself into the period of celebrations for the Seventh Centenary of the death of St. Albert the Great (c.1200-1280) and takes its point of departure from the figure and work of the great medieval scientist, who is a Doctor of the Church and the patron of scientists, besides being the master of St. Thomas Aquinas. It offers an analysis of the situation in which contemporary science finds itself, and proposes the lines for posing the epistemological problem correctly.³⁶

After the usual greetings (no. 1), the speech is structured around three themes:

³⁶ Original text in German online at www.vatican.va/content/john-paul-ii/de/speeches/1980/november/documents/hf_jp_ii_spe_19801115_scienziati-studenti-colonia.html. Here, the English translation is from my book *The Sciences and the Fullness*.

- the problem of dialogue between science and faith (nos. 2-3);
- the problem of technology with regard to “applied” science (nos. 3-4);
- the problem of science as “theory” and “form of knowledge” (nos. 4-5),

and also indicates the logical steps joining them.

Our attention will be focused above all on the second and third themes, which will bring us to a more properly epistemological study, even if the speech touches on other extremely important aspects, such as that of *meanings* and of the *freedom* and *autonomy* of science with respect to power.

Scientific knowledge has led to a radical transformation of human technical ability. As a result, the conditions of human life on earth have changed in an enormous way and have also improved considerably. The progress of scientific knowledge has become the motor of a general cultural progress. [...]

This interrogation acquires particular weight before the duty of scientific thought in relation to man. The so-called human sciences have surely furnished important and progressive knowledge regarding human activity and behavior. These, however, incur the danger, in a culture driven by technology, of being utilized to manipulate man, for purposes of economic and political domination (n. 3).

The encyclical *Redemptor Hominis*³⁷ at n. 15 had already conducted a lucid analysis on the crisis of “livableness” of the scientific-technological civilization. The speech of Cologne applies this analysis in detail to science and technology.

a) The Problem of Technology as “Applied” Science

First of all, we must make a distinction regarding the principle between pure science and applied science (technology), in opposition to much contemporary epistemology that, on the path of relativism, has denied science a cognitive value. It has reduced even the most abstract science to a theoretical technology for the manipulation of data and numbers that are useful only to make predictions and to build machines, but not to know in the sense of explaining and understanding the universe in its causes.

³⁷ Cfr. JOHN PAUL II, Encyclical Letter *Redemptor Hominis*, March 4, 1979.

The *speech* then identifies two levels of crisis: one regarding science as technology and the other regarding science as theory, and establishes a precise connection between them.

The transformation of the world on the technical level has appeared to many as the meaning and purpose of science. In the meantime it has happened that the progress of civilization does not always indicate an improvement in the quality of life. There are involuntary and unforeseen consequences, which can become dangerous and harmful. I recall here only the ecological problem, which arose following the progress of technical-scientific industrialization. In this way, serious doubts arise regarding the capacity of progress, in its entirety, to serve man. Such doubts have repercussions on science, understood in the technical sense. Its meaning, its objective, its human significance are put into doubt (n. 3).

The present crisis of legitimization of science originates in having judged technology the one and only purpose of science. There are two positions implicit in this utilitarian decision: one ethical, the other epistemological.

On the *ethical plane* «If science is understood essentially as a “technical fact”, then it can be conceived of as the search for those processes that lead to success of a technical type» (n. 3) and, choosing a logic that identifies technical success with the value of man, one is led to identify the “good” as “that which is technically possible”.

On the *epistemological level*, it is assumed that:

what has value as knowledge, therefore, is that which leads to success. The world, on the level of scientific data, becomes a simple complex of phenomena that can be manipulated; the object of science becomes a functional connection that is analyzed only in reference to its functionality. Such a science can only conceive of itself as pure function. The concept of truth thus becomes superfluous; indeed, sometimes it is even explicitly rejected. Finally, reason itself is seen as a simple function, or the instrument of a being that finds the meaning of its existence outside of knowledge and science, in the best of cases, in life alone (n. 3)

in a dimension that is described as instinctive, sentimental, and at any rate, irrational. It is precisely in this irrational dimension that the most important questions are placed, such as the question of the “meaning” and the “purpose” of things and of life, and of the “foundation” of knowledge, and so on.

As a consequence, one finds that not only science, but also all «our culture, in all its sectors, is imbued with a science that proceeds in a largely functionalistic manner» (n. 3).

At this point in the *speech*, the link is established between the ethical aspect concerning the purpose of science and the epistemological aspect concerning its cognitive value. This is the central issue to be resolved. In such a way, one passes from the problem of technology, as “applied” science, to the consideration of the problem of science as “theory” and “form of knowledge”.

b) The Problem of Science as “Theory”

The key issue linking the analysis of science as technology with the question of the epistemological assumptions of science as theory, lies in the inevitability of the nexus between the conventionalist and utilitarian position, which denies the classical notion of objective truth, and the ethic of success as the final purpose of science, according to which the good is everything that is technically possible.

The first ends up denying science the possibility of reaching any form of knowledge of truth and, as a result, also denies its autonomy and freedom with respect to power. The second, in its most extreme consequences, tramples on the dignity of man and makes society progressively more unlivable.

Until now we have spoken mainly of the science that is at the service of culture and in consequence, of man. Still, it would be too little to limit ourselves to this aspect. Precisely in front of the crisis we must remind ourselves that science is not just a service for other ends. The knowledge of the truth has meaning in itself. It is fulfillment, of a human and personal nature, a human good of the first order. Pure “theory” is itself a modality of human “praxis”, and the believer is awaiting a supreme “praxis” that will unite him forever to God: that “praxis” that is vision, and therefore also “theory”.

We have spoken of a “crisis of legitimacy in science”.

To be sure, science has its own meaning and its own justification when it is recognized as capable of knowing the truth and when the truth is recognized as a human good. Then even the demand for the freedom of science is justified; indeed, how could a human good be realized, if not through freedom? Science must be free also in the sense that its actualization must not be determined by immediate ends, social needs or economic interests. This does not mean, however, that it must, in principle, be separated from “praxis”. Only that, to be able to influence praxis effectively, it must receive its first determination from truth, and thus be free for the truth. A free science devoted only to the truth does not allow itself to be reduced to the model of functionalism or to other kinds of models, which limit the cognitive sphere of scientific rationality (n. 5).

In a positive sense, reference is made to the “organic” model of the unity

of knowledge and to an open rationality such as the medieval rationality at the time of St. Albert the Great and especially of St. Thomas Aquinas.

Science must be open, and furthermore multi-form, without however having to fear the loss of a unitary orientation. This is given by the triple reality of personal reason, freedom and truth, in which the multiplicity of concrete implementations is founded and confirmed. I do not hesitate to place even the science of faith within the horizon of a rationality understood in this way. The Church hopes for an autonomous theological research, that does not identify itself with ecclesiastical Magisterium, but which knows itself to be committed to work before the Magisterium in common service of the truth of the faith and to the people of God (n. 5).

From the "external" way to the "internal" way the word "truth" is proposed once again. With this journey from outside science, one is not yet able to construct demonstratively an epistemology (and more generally, a philosophy) in which the notion of truth, in the classical and full sense of the word, finds a space, and therefore a meaning. However, through this way, one is suggested, or almost forced to see, through factual clues, the necessity of developing a *Theory of Science* in which the word "truth" has a *non-conventional* value.

The reference to the medieval conception of the sciences – especially the one of Thomas – and of the unity of knowledge, at this point, takes on particular significance, since in such a synthesis the word "truth" is given its true and proper place. It is necessary, however, to integrate this *external method* with the attentive *internal analysis* of the methodology of modern science in the search for its *logical* and *ontological foundations*.

It is worthwhile at this point to cite a passage of a more recent text:

Today "we face a great challenge [...] to move from *phenomenon* to *foundation*, a step as necessary as it is urgent. We cannot stop short at experience alone; [...] speculative thinking must penetrate to the spiritual core and the ground from which it rises" (Encyclical *Fides et ratio*, n. 83). Scientific research is also based on the capacity of the human mind to discover what is universal. This openness to knowledge leads to the ultimate and fundamental meaning of the human person in the world (cf. *ibid.*, n. 81).³⁸

It is also worthwhile citing another passage from *Fides et Ratio* that allows us to foresee how the problem of foundations might constitute a true and proper link with the most profound philosophical and theological

³⁸ JOHN PAUL II, *Jubilee of Scientists. Address of the Holy Father John Paul II*, May 25, 2000.

questions, which have full rational dignity and cannot be done away with as psychological or irrational.

Finally, I cannot fail to address a word to scientists, whose research offers an ever greater knowledge of the universe as a whole and of the incredibly rich array of its component parts, animate and inanimate, with their complex atomic and molecular structures. Science has come so far, especially in this century, that its achievements never cease to amaze us. In expressing my admiration and in offering encouragement to these brave pioneers of scientific research, to whom humanity owes so much of its current development, I would urge them to continue their efforts without ever abandoning the sapiential horizon within which scientific and technological achievements are wedded to the philosophical and ethical values which are the distinctive and indelible mark of the human person. Scientists are well aware that “the search for truth, even when it concerns a finite reality of the world or of man, is never-ending, but always points beyond to something higher than the immediate object of study, to the questions which give access to Mystery”.³⁹

What is new and interesting for the scientific mentality is that at present, this openness is no longer simply the object of an exhortation proposed from outside science, but begins to show itself as an internal necessity, indispensable for the foundation of scientific knowledge, which is no longer able to demonstrate from within its own self-sufficiency. Nor can it show this self-sufficiency to be complete or coherent.

This referral of scientific theory to its own foundation constitutes a type of joining element between the modern problem of the *Theory of Foundations* in the field of mathematical logic and the ancient medieval concept of science, which required every science to be founded on knowledge of a superior level that acted as a meta-science, until they reached indemonstrable first principles, recognized as indispensable for constructing the whole edifice of knowledge.

Scientific affirmations are always in the particular. They are justified only in consideration of a determined point of departure, they are situated in a process of development and within that they can be corrected and surpassed. But above all: how can something constitute the result of a scientific point of departure which first justifies this point of departure and therefore must already be presupposed by it?⁴⁰

³⁹ JOHN PAUL II, *Fides et ratio*, n. 106.

⁴⁰ JOHN PAUL II, *Speech of Cologne*, n. 3.

A science needs a point of departure, a series of affirmations, not demonstrated and non-demonstrable from within its (axiomatic) system: these constitute its foundations (definitions, rules, principles). If one accepts a univocal model of science, in which only one type of science is offered (univocal epistemological model), such presuppositions necessarily come to be found outside that science and are therefore unscientific, irrational, based on convention or ideology. This is the paradox of the "closed" conception of science: the impossibility of founding itself on completely rational bases, just when it needs the maximum of scientific rationality.

Today we find ourselves in front of a bipolar model of science, where the two poles are constituted by mathematics on one side and by the experimental sciences on the other. Mathematics furnishes some foundations for the physical sciences, and more in general for the experimental sciences, but it itself, in turn, is not founded on a superior science nor is able, on its own, to found itself on indispensable and true first principles, but only on conventional principles.

In this situation, science manages neither to be a completely demonstrative system, nor to demonstrate its own truths or even its own internal coherence (Gödel). Because of this, the problem of foundations today is acquiring ever more ground, because it sets the conditions for the advancement of the scientific enterprise itself. Rather than give up skeptically as much of philosophy has done, science is realizing that there is a path to a solution: an open science, capable of organizing itself in hierarchically structured levels of sciences, in which each one offers the foundation for the next, linking back to principles that are true at least because they are indispensable for the logic of thought as such. We are speaking about an organic and analogical model of knowledge.

2. *Something from the Teaching of Benedict XVI*

Benedict XVI develops the premises, posed by John Paul II, in both directions:

- a *theoretical* one emphasizing the need of a *widened model of rationality*, as suggested by the medieval thought of St. Thomas and today as required even by the recent mathematical and cognitive sciences, and in order to overcome the philosophical relativism of contemporary thought;

- a *practical* one emphasizing the need of a universal *natural law* and a *natural right* as urgently required by the crisis of livability of the contemporary more advanced societies and states.

We will approach his challenge to contemporary *relativistic moral thought*, starting from some simple considerations.

He explicitly identifies the cause of the loss of livability in our society with the denial of these two universal references (*truth* and *natural law*) by founding on the re-proposition of these, at least as provisional hypotheses to be verified in the social and legislative laboratory. The thesis of “non-negotiable principles” just follows from these two pillars of culture and of social life:

- the need to admit some *universal objective truths*;
- the need to admit a *universal objective natural law*, the one also communicated by Revelation (*revelatum per accidens*) synthesizing it in the *Decalogue*.

A sort of re-proposition of St. Thomas epistemology and metaphysics, together with Augustine view of *the city of men* far from *the city of God*, suggested in a negative fashion through the consideration of the devastating consequences of the abandon of both ones.

The main thesis is that if we give up these two pillars (*truth* and *natural law*), or even theorize their denial, society becomes not only unlivable, but even impossible to govern, and democracy ends up paralyzing and ultimately self-destructing, the economy will be blocked, etc. And present-day facts do confirm the thesis.

As a *latter* positive way the development of cultural work on the first point (that of the search for theoretical, scientific foundations, of universal objective truths) is the main task of intellectuals, men of science, philosophers and theologians, as the latter can offer to the former those philosophical elements that are already contained also in Revelation, Scripture, Tradition, and in the Magisterium. The indication given to them by the Magisterium of Benedict XVI, on the path opened by John Paul II, has been to work towards a “widened rationality”. A work that can fruitfully start from the *problem of the foundations* of our most advanced sciences. I only mention some passages in this regard.

A correct understanding of the challenges posed by contemporary culture and the formulation of meaningful responses to these challenges must have a critical

approach to the limited and ultimately irrational attempts to restrict the realm of reason. The concept of reason must instead be “expanded” to be able to explore and understand those aspects of reality that go beyond the merely empirical dimension. This will allow for a more fruitful and complementary approach to the relationship between faith and reason.⁴¹

By asking questions about the truth, we actually widen the horizon of our rationality, we begin to free reason from those too narrow limits within which it is confined when only what can be the object of experiment and calculation is considered rational.⁴²

We Europeans must rethink our secular reason.⁴³

But while waiting for this theoretical elaboration to be developed – an operation that normally requires a long period of time – it is necessary to implement practical solutions, provisional hypotheses that serve to unlock the social deadlock in which the world in general, and Europe in particular, Italy included, finds itself trapped. The challenge to decide to take a step in this direction has been launched by Pope Benedict also in the form of a sort of slogan. That is, the formula he suggested *to live as if God existed*, reversing the old formula attributed to Grotius *to live as if God did not exist*.

The idea of living “as if God did not exist” has proved harmful: the world needs rather to live “as if God existed”, even if there is no strength to believe, otherwise it produces only an inhuman humanism.⁴⁴

A kind of “test to believe” (almost a Pascal-like challenge), while waiting to regain possession of a thought system that allows to recover demonstratively, philosophically, scientifically the theoretical validity, as well as practical, of those irrevocable principles, so that *truth can return to be scientific*.

In the Magisterium of Benedict XVI, the inseparable bond between truth and freedom, already highlighted by John Paul II, is further explicitly stated.

⁴¹ BENEDICT XVI, *Address to the Participants in the First European Meeting of University Lecturers*, June 23, 2007.

⁴² BENEDICT XVI, *Address to the Participants at the Ecclesial Convention of the Diocese of Rome*, June 5, 2006.

⁴³ BENEDICT XVI, *Address to the Journalists*, Fiumicino Airport, November 28, 2006.

⁴⁴ BENEDICT XVI, *Address to Participants in the Congress Organized by the Pontifical Council for Social Communications*, October 7, 2010.

On one hand, negatively, as a “diagnosis” of a historical philosophical-cultural error with epochal consequences on civilization that we see in the form of its unlivability.

On the other hand, positively, through the challenge to men of culture, governments, powers of all kinds, and individuals, formulated as a proposal for a “therapy”: that of adopting as new principles of thought and lifestyle those theoretical and practical principles that the neo-gnostic world of modernity had sought to avoid, in order to not have to seriously confront Christianity, or rather Christ himself through the Church.

In this context lies the issue of the *non-negotiable principles* systematically re-launched by Pope Benedict, especially in the last years of his pontificate. And even before that, at the foundation of these, the proposal to take up again the question of *natural moral law* as the “practical” counterpart corresponding to the question of *truth* on the “theoretical” level.

This proposal is no longer dealt with solely as an ethical-disciplinary call directed to Catholics and people of good will (according to a style of Magisterium typical of the past and suitable for those times), but as necessary and irrevocable condition for society to be livable and to escape from the deadlock in which every political and economic system has found itself. And today, we have now come to a total blockade.

Some believe that human reason is unable to grasp truth and, therefore, to pursue the good that corresponds to the dignity of the person. [...] The social doctrine of the Catholic Church offers, in this regard, elements of useful reflection to promote security and justice, both at the national and international levels, starting from reason, *natural law*, and also from the Gospel, that is, from what is in accordance with the nature of every human being and also transcends it.⁴⁵

He addresses the International Theological Commission, to which he asked to produce a working document on the theme of *natural law* (published in 2009), with these explanatory words.

The Catechism of the Catholic Church summarizes well the central content of the doctrine on the *natural law*, highlighting that it “indicates the prime and essential norms that regulate moral life. It has as its pivot the aspiration and submission to God, source and judge of all good, as well as the sense of the other as equal to oneself. In its principal precepts, it is expressed in the *Decalogue*. This law is called natural not in relation to the nature of irrational beings, but because the reason

⁴⁵ BENEDICT XVI, *Address to the Participants in the Conference of the Executive Committee of Centric Democratic International*, Castel Gandolfo, September 21, 2007.

that promulgates it is proper to human nature” (n. 1955). With this doctrine, two essential purposes are achieved: on the one hand, it is understood that the ethical content of the Christian faith is not an imposition dictated from outside the conscience of man, but a norm that has its foundation in human nature itself; on the other hand, starting from the *natural law* per se accessible to every rational creature, it lays down with it the basis for entering into dialogue with all men of good will and, more generally, with civil and secular society. [...] True rationality is not guaranteed by the consensus of a large number, but only by the transparency of human reason to the creative Reason and by the common listening to this Source of our rationality.⁴⁶

The speech delivered to the German federal parliament on September 22, 2011 is a true masterful lesson on the need to found legislation, at any level (local, national, and international) on a rediscovered common basis of *natural law*, rather than solely on conventions resulting from agreements voted by majority.

In many matters to be regulated by law, that of the majority may be a sufficient criterion. But it is evident that in the fundamental issues of law, where the dignity of man and humanity is at stake, the majority principle is not enough: in the process of law formation, every person with responsibility must seek the criteria of their own orientation.⁴⁷

Benedict XVI is even stronger in the aforementioned speech, and shielded with the authority of St. Augustine, he clearly indicates where good intentions end up: “Remove justice – and what is the State but a great band of robbers?, Augustine once said”.

More he said: “The idea of *natural law* is considered today a rather singular Catholic doctrine, not worth discussing outside the Catholic context, so much so that one almost feels ashamed to even mention the term”, but the proof that this opinion is incorrect lies in the facts, in the loss of livability that it ultimately produces.

According to a mathematical language, it could be said that we are facing a *reductio ad absurdum*. If you cannot constructively prove a thesis, try to prove its negation: if what you get is a contradiction, then the thesis you wanted to deny is the true one. And on the social level, the contradiction is manifested by the increasing unlivability.

⁴⁶ BENEDICT XVI, *Address to Members of the International Theological Commission*, October 5, 2007.

⁴⁷ BENEDICT XVI, *Address to the Bundestag*, September 22, 2011.

RETURNING TO RELIGIOUS EXPERIENCE

The Contemporary Challenge in the Dialogue Between Philosophy and Theology

GIUSEPPINA DE SIMONE

Pontifical Theological Faculty of Southern Italy, St. Luigi Section, Naples
Faculty of Theology, Pontifical Lateran University, Vatican City

ABSTRACT: This essay examines the relationship between philosophy and theology from the perspective of religious experience, drawing on the arguments developed by Giuseppe Tanzella-Nitti and the insights offered in Max Scheler's philosophy of religion. Tanzella-Nitti's extensive scholarship provides a framework for understanding the interplay between philosophy and theology, avoiding confusion while fostering a synergy grounded in a renewed engagement with religious experience. By drawing on the sciences of religion and a philosophy of religion, theology uncovers traces of God's self-revelation in creation and history. It provides a framework to clarify the foundations of religious phenomena and what makes them possible. Engaging deeply with religious experience allows philosophy and theology to renew their dialogue, addressing metaphysical questions and the *quaestio Dei*.

KEYWORDS: Religious Experience, Revelation, Foundation, Theology of Religion, Understanding of the Human.

RIASSUNTO: Il saggio mette a tema il rapporto tra filosofia e teologia a partire dall'esperienza religiosa, ripercorrendo l'argomentazione offerta in merito da Giuseppe Tanzella-Nitti e le sollecitazioni presenti nella filosofia della religione di Max Scheler. L'ampia produzione scientifica di Tanzella-Nitti aiuta ad articolare l'intreccio possibile tra filosofia e teologia senza confusioni, ma in una capacità di sinergia che viene anche dalla disponibilità a ritrovare il rapporto con l'esperienza religiosa. Nella lettura dell'esperienza religiosa, condotta attraverso l'apporto delle scienze del fatto religioso e di una filosofia della religione capace di metterne in luce la logica di senso, la teologia riconosce la traccia del dirsi di Dio nel creato e nella storia. Essa offre una chiave interpretativa del fatto religioso che ne illumina il fondamento, ciò che la rende ultimamente possibile. Accettando di muovere dalla lettura in profondità dell'esperienza religiosa, filosofia e teologia possono validamente intessere un nuovo dialogo in ordine alla domanda metafisica e alla *quaestio Dei*.

PAROLE CHIAVE: Esperienza religiosa, Rivelazione, Fondazione, Teologia della religione, Comprensione dell'umano.

SUMMARY: I. *The Dialogical Posture of Theology*. 1. A “*Theology of Religion*”. 2. The Specific Contribution of Theological Reflection. 3. For a Veritative Ontological Connection. 4. Expanding the Understanding of the Human. II. *For a “Free Handshake” Between Philosophy and Religion: Schelerian Insights*. 1. Redefining the Field of Inquiry. 2. Beyond Traditional Solutions. 3. Conformity Between Philosophy, Religion, and Theology. III. *Quaestio Dei and Quaestio de homine in Light of Religious Experience: Marginal Considerations*.

How can we reframe the relationship between philosophy and theology? Giuseppe Tanzella-Nitti’s extensive body of work offers a way to explore the interplay between these disciplines without conflating them, highlighting a synergistic dynamic rooted in a shared engagement with experience—particularly religious experience. By examining religious experience through the lens of the sciences of religion and a philosophy of religion that reveals its underlying logic of meaning, theology discerns traces of God’s speech within creation and human history. This approach provides a broader foundation for understanding the mystery of revelation while offering an interpretive key that sheds light on the ultimate grounds of religious phenomena. Theology contributes uniquely to the philosophical understanding not only of religious experience but also of existence itself. By embracing a profound reading of religious experience, philosophy and theology can enter into a renewed dialogue, addressing the metaphysical question and the *quaestio Dei*. Engaging with God—beginning with God’s self-revelation within the fabric of human existence and history—is a pressing challenge and a pathway to deeper insight into the human person, continually created and sustained in this relationship. The *quaestio Dei* (the question of ultimate foundation) and the *quaestio de homine* (the question of the human person) illuminate and complement one another in a rich interweaving of knowledge. This synthesis remains distinct yet unified, rooted in the experience of God’s revelation and the profound depths of human existence and life.

I. THE DIALOGICAL POSTURE OF THEOLOGY

Anyone familiar with Tanzella-Nitti’s work cannot fail to notice his extraordinary ability to establish connections and integrate different disciplinary approaches, research areas, and fields of knowledge. One of the most significant aspects of his scholarship is his engagement with the sciences, a dialogue cultivated over time with both competence and passion, rooted in his personal journey and academic formation. More

broadly, his understanding of theology's mission is characterized by a dialogical posture—a rigorous engagement with topics and issues that respects the distinct domains of knowledge while articulating them in mutual relationship. This expansive horizon fosters the emergence of new insights and perspectives, grounded in a structured and thorough exploration of the truth of faith.

1. A “*Theology of Religion*”

Tanzella-Nitti's theological reflection on the phenomenon of religion exemplifies this dialogical approach.¹ Theology draws extensively from research conducted by the sciences of religion and from the knowledge they provide about the origins of religious phenomena in human history. However, the discussion presented in his volume on *Religion and Revelation* is not a detached foray into other fields of inquiry, only to return later to theological arguments. Rather, theological reflection on revelation as the foundation of faith is constructed in dialogue with the sciences of religion, listening attentively to their insights. This approach not only establishes a shared foundation for exploring the reasons for faith but also seeks those reasons within human history, recognizing their intrinsic connection to the history of God's self-revelation and the unfolding of the mystery of salvation.

The placement of the discussion on religious phenomena at the beginning of the volume on revelation underscores this perspective. It is not a theology of religions appended to fundamental theology, intended merely to argue the truth of faith in relation to other religious traditions. Instead, it offers an understanding of faith and God's revelation in Jesus Christ—its foundation and focus—starting from the comprehension of religious experience, which constitutes the living core of religions. This is a theology of religion as the primary and essential dimension of fundamental theology itself.

¹ We specifically refer to the 3rd Volume of his *Teologia Fondamentale in Contesto Scientifico*, titled *Teologia della Rivelazione. Religione e Rivelazione*, Città Nuova, Roma 2018. This remarkable four-volume work on fundamental theology, authored by Tanzella-Nitti and published by Città Nuova between 2015 and 2022, is distinguished by its development in close dialogue with science and philosophy.

Tanzella-Nitti emphasizes the unique contribution theology can offer in the study of religious phenomena, even as it appreciates the role of philosophy of religion. Theology does not merely describe religious experience in human history or identify its distinctive features. It also seeks to explain it, to inquire into its ultimate foundation and orientation. While phenomenological philosophy helps uncover the logic of meaning underlying religious experience, and ontological reflection—implicit or explicit in phenomenological readings—bridges the phenomenon to its foundation, theology addresses the “why” of this experience. It moves the inquiry toward the very foundation, starting from how this foundation is perceived and understood within religious experience.

The ontological level, shaped by philosophical inquiry, calls for integration and development on a theological level. If the philosophy of religion can discern the priority of the object and the infinite self-disclosure of this object as the condition and foundation of religious experience,² it still leaves unanswered the question of who God is as revealed through religious experience. This question, consistent with the logic attested by religious experience, can only be adequately answered by beginning with God’s self-revelation.

Focusing on the object without becoming trapped in abstract speculation disconnected from concrete experience requires understanding the object in its relational self-communication. It is within history and the depths of human experience—by allowing oneself to be led by them—that the face of God is discovered, and the foundation of religious experience named. The salvation history narrated in Scripture illuminates religious experience and its ultimate foundation, while the faith lived by the believing community conveys a thought expanded by grace. This thought opens onto the fulfillment of humanity and the cosmos, the ultimate destination of their intrinsic tensions.

² Such is the case, for example, in Max Scheler’s phenomenology of religion. See in this regard M. SCHELER, *On the Eternal in Man*, transl. by B. Noble, Routledge, Abingdon 2009, particularly the writings compiled in the section titled *Problems of Religion*, 105-356.

2. *The Specific Contribution of Theological Reflection*

According to Tanzella-Nitti, theology has a unique task that no other discipline can fulfill: it contributes to a “correct epistemology of religious phenomena.” Theology, he argues, “shifts the focus to the cause of religion,” because it cannot be confined solely to phenomenology and its exploration of the how of religion without addressing the deeper question of what religion is.³ Theology takes on the transcendence of religious phenomena, addressing aspects that the sciences of religion alone cannot explain—such as the essence of religion, its origins, and why it exists at all.⁴

Theology of religion, therefore, addresses religion as a concept “centered on the category of salvation.”⁵ It highlights that the personal and relational dimension of the bond between humanity and God is not merely a hypothesis deduced from material traces left by religious experience, nor can it be reduced to those traces. Instead, it is a “salvific proclamation.”⁶ Only the notion of revelation allows us to overcome the aporia inherent in examining religious phenomena—a revelation whose object and expression transcend anthropological horizons. The impossibility of grounding religion purely in human experience opens up the possibility of revelation as its origin. Tanzella-Nitti insightfully observes that “on closer examination, the concept of revelation is already present within religious experience itself, *as experience*. If human beings ‘experience the divine,’ it is because the divine approaches them—or, at the very least, they perceive its presence and action.”⁷

From the very beginning, religious experience is founded on revelation: in the contemplative perception of nature and the profound sentiments that move the human heart.⁸ At every level, religion and rev-

³ Cfr. TANZELLA-NITTI, *Teologia della Rivelazione*, 108.

⁴ Cfr. *ibidem*, 107.

⁵ *Ibidem*, 104; cfr. *ibidem*, 102-105 (our translation).

⁶ See in particular *ibidem*, 102-105.

⁷ *Ibidem*, 63 (our translation).

⁸ Beyond the concept of natural religion. “The close relationship that exists, at the phenomenological level, between religion, revelation and faith, finally justifies why it is convenient to overcome the classical distinction between *natural* religions and *revealed* religions introduced by the Catholic Apologetics of neo-scholastic approach” (*ibidem*, 62; our translation).

elation are intimately connected. Yet, this is not the vague manifestation of an indefinite mystery.⁹ “Religion and revelation are both terms of a personal *relationship*.”¹⁰

The personal nature of this revelatory relationship is particularly evident in the existential dimension of religious experience—in the aspirations it stirs within individuals, in their invocation of the Other, and in their search for a Face.¹¹ This dynamic is most clearly seen in the distinctive quality of religious experience: an invocation and an expectation that arise from an encounter, a relationship inwardly perceived and intuitively grasped in its transformative and mobilizing power. “There exists [...] a subtle but profound connection between religion and hope, between hope and revelation. The very movement of human self-transcendence can be interpreted [...] as hope, expectation, and ultimately, as an openness to revelation. Human beings know they are reaching for something—or, rather, Someone¹²—and *they know* this expectation is founded.”¹³

While the sciences and philosophy of religion already provide a “realistic and objective conception of religious experience,” recognizing it as an anthropological constant that expresses humanity’s openness to transcendent otherness, theology affirms and deepens this orientation.

⁹ What is instead the nameless mystery of post-theism. Cfr. C. FANTI, M. LÓPEZ VIGIL (a cura di), *Oltre Dio. In ascolto del mistero senza nome*, Gabrielli, Verona 2021.

¹⁰ TANZELLA-NITTI, *Teologia della Rivelazione*, 63 (our translation). “The salvation invoked is thus, in its deepest fibers, the expectation and gift of a revelation: the revelation of man to himself, the revelation of the Creator’s plan for the creature, the revelation of the Absolute to which human self-transcendence is directed, seeking it as truth and life, goodness and justice, happiness and love. The author of this salvation, if he exists, must also be the author of such a revelation. He is no longer the object of a philosophy of God, nor of a phenomenology of the Numinous. The author of this revelation and salvation must stand before man as a salvific event that comes to him in history, as a personal being on whom his existential aspirations can rest, as a name to be invoked, a face to be recognized, a heart to be loved. This is the theological, salvific-historical formality by which theology enters into a reflection on religion, illuminating it with the revelation of that event which it proclaims to have happened, and nourishing it with the contents that accompany it” (*ibidem*, 103; our translation).

¹¹ Cfr. *ibidem*, 64.

¹² *Ibidem*, 65 (our translation).

¹³ *Ibidem*, 64 (our translation).

It proclaims the identity between authentic religious experience, understood as an expression of our being *imago Dei*, and the experience of the one true God fully revealed in Jesus Christ.¹⁴ Theology thus affirms what Tanzella-Nitti terms “creaturely revelation” in nature and human conscience as “forms of revelation... of the one true God.”¹⁵ In this way, Judeo-Christian revelation can be presented as “the fulfillment of myth and the recovery of its truth-bearing elements.”¹⁶ Salvation history becomes “the fulfillment of what religion prepares.”¹⁷

The themes of expectation and fulfillment, and the category of promise, serve as guiding threads in this theological examination of religious experience. Theology does not hesitate to “positively evaluate the anthropological and natural dimensions of revelation and faith,” recognizing and valuing “what in the human religious journey originates from the one true God.” The specific character of Christianity, with the gratuity that defines it, must be understood “through the lens of fulfillment, not rupture.”¹⁸

The theological perspective recognizes the revelatory dimension of reality, conveyed through the Word present in creation. This revelation, inseparable from our identity as creatures, is not external to salvation history but integrally connected to it. As Tanzella-Nitti writes, “Creaturely revelation and filial revelation share a common origin in the same Word. Both establish a personal relationship between humanity and God [...] both are oriented toward salvation [...]. Their difference lies in how God enters into relationship with humanity [...]—either revealing a creaturely relationship or a filial relationship within the mystery of the Word made flesh [...]. Between them exists a relationship “propaedeuticity”, of preparation: the spoken Word, not yet sent, prepares for the acceptance of the sent Word. The revelation/awareness of being creatures prepares for the awareness/revelation of being children. Gratitude for the mystery of Being prepares for gratitude for the mystery of

¹⁴ *Ibidem*, 108 (our translation).

¹⁵ *Ibidem*, 114-115 (our translation).

¹⁶ *Ibidem*, 115 (our translation).

¹⁷ *Ibidem*, 112 (our translation).

¹⁸ *Ibidem*, 34 (our translation).

sonship, equally and even more undeserved.”¹⁹ At the center is the relationship made possible by God’s revelation, which is itself relational.²⁰

3. *For a Veritative Ontological Connection*

Theology also contributes to an important conceptual step: it invites us to relate the findings of historical and phenomenological studies to the Absolute, which theoretical-philosophical thought identifies as cause (Necessary Being, Intelligent Cause, Foundation of Being, etc.). Theology balances and completes the portrayal of a supreme Being, which might otherwise risk being reduced to a mere projection of human expectations or existential desires.²¹ Furthermore, it prompts a formulation of the metaphysical question that reconnects the historical and existential dimensions, finding in lived experience the link to the *quaestio Dei*.

The ontological certainties contained within religious experience cannot be confined to the realm of subjective religious perception, as this would reduce the experience to something merely personal and incommunicable. Instead, these certainties “must also rest upon an Absolute, apprehended through reflective reason, which, while incapable of fully revealing a Face, can nonetheless assure us of the reality of a Subject that truly exists and is not merely desired.”²² This connection is not merely optional; it emerges naturally from the movement of meaning inherent in authentic religious experience. Moreover, it is rigorously argued by a theology of religion.

“Holding together these dimensions is both a challenge and a necessity. Neglecting this would impoverish religious experience itself, reducing it to a subjective and incommunicable event, while forgetting its vocation to unify existential and intellectual dimensions, orienting the individual toward the Absolute in the search for God.”²³ By supporting and guiding this dialogue between philosophy and religion,

¹⁹ *Ibidem*, 420 (our translation).

²⁰ Cfr. *ibidem*, 417-418.

²¹ Cfr. *ibidem*, 108.

²² *Ibidem*, 69 (our translation).

²³ *Ibidem*, (our translation).

theology can effectively demonstrate how the Absolute, as the rational foundation of reality, corresponds with the living God encountered in authentic religious experience.

Tanzella-Nitti points out that “the concept of God’s personality in Judeo-Christian revelation manifests an unprecedented convergence between the religious and philosophical perspectives.” This God “unites in Himself the reasons for truth and those for life.”²⁴ Theology thus illuminates an understanding of Being that not only includes religious experience but also expands it when correctly understood and authentically lived.

This dynamic involves discerning the truth dimension of religious experience, which is intrinsically tied to its ontological dimension. Religious experience contains within it a thought of being, just as philosophical reason can elaborate a thought of Being that helps clarify the ontological and truth-bearing dimensions of religious experience.²⁵

4. Expanding the Understanding of the Human

Through this connection, theology also sheds light on the understanding of the human person, offering insights that confirm and clarify humanity’s orientation toward the Absolute and its capacity for transcendence—elements already attested by historical and phenomenological studies. Theology enhances this understanding by referring to the order of creation and the filial condition revealed in Christ Jesus, which form the core of Christian faith and revelation.

Tanzella-Nitti draws on Thomas Aquinas, who defined religion as *religio proprie importat ordinem hominis ad Deum* (“religion properly implies the ordering of humanity to God”).²⁶ This is not merely a relationship but an “ethically qualified, salvific relationship.” It signifies an existential tension, as the *ordo hominis ad Deum* applies to all human activity, which becomes religious insofar as it is oriented toward God.²⁷ This

²⁴ *Ibidem*, 109 (our translation).

²⁵ On the possibility of an ontological-truth development of the intelligence of religious experience, see C. GRECO, *L’esperienza religiosa. Essenza valore verità*, San Paolo, Cinisello Balsamo 2004.

²⁶ S.Th., II-II, q. 81, a. 1.

²⁷ Cfr. TANZELLA-NITTI, *Teologia della Rivelazione*, 109.

is not an extrinsic or heteronomous ordering, but an intimate orientation of the human person that must be consciously embraced and lived. *Desiderium naturale videndi Deum* (the natural desire to see God) is intrinsic to the human being.²⁸ There is a religious nature within humanity that serves as a preamble to faith, finding its fulfillment in faith.

Romano Guardini similarly emphasizes that the *ordo ad Deum* characterizes the human person. It is an unmerited gift but also a continual pursuit.²⁹ In the convergence of religion and philosophy—made possible through theology’s theoretical insights—a more comprehensive examination of the relationship between faith, religion, and belief emerges. Religious belief, while not theological faith, can nonetheless be associated with the notion of faith because it involves entrusting oneself to knowledge—or better, to a relationship—that is given and comes forth to meet us. Thus, the term “faith” cannot be reserved exclusively for Christian faith or set in opposition to religion, as is sometimes the case in certain apologetic frameworks.³⁰

Faith, as an attitude linked to revelation, is revealed to be an anthropological structure, a key to understanding humanity, and the principle of its dynamic fulfillment. The human being is not only capable of relationship but is fundamentally constituted within a relational origin. Faith, as trust and reliance, testifies to an understanding of oneself within this relationship, a movement that is both intimate and transcendent, guiding existence and providing coherence and meaning. There is no opposition between faith and knowledge. Instead, there is a profound articulation that theological reflection on religious experience helps to recognize and understand.

The theological dialogue with the sciences of religion and the philosophy of religion once again points to unity—not a unity that confuses but one that connects, articulating the diversity of levels in their intrinsic correspondence and integration.

For this reason, Tanzella-Nitti emphasizes that “one of the most important fruits of renewed theological reflection on religion in the singular will be to foster a more accurate theology of religions in the

²⁸ S.Th., I, q. 12, a 1.

²⁹ Cfr. R. GUARDINI, *Religione e rivelazione*, Vita e Pensiero, Milano 2001, 10.

³⁰ Cfr. TANZELLA-NITTI, *Teologia della Rivelazione*, 62-63.

plural,” as well as a reflection on humanity and the religious sense that defines it, enabling deeper communication among cultures.³¹

II. FOR A “FREE HANDSHAKE” BETWEEN PHILOSOPHY AND RELIGION: SCHELERIAN INSIGHTS

Tanzella-Nitti delineates the task of theology in relation to philosophy and the sciences that study religious experience primarily from the standpoint of theological speculation. However, philosophy itself, from its own vantage point, also seeks integration and completion.

A key reference here is Max Scheler, who, in the 1920s, addressed the relationship between religion and philosophy in a way that revolutionized traditional frameworks.³² While Tanzella-Nitti’s theology of religion does not derive from Scheler, it dialogues with the German philosopher’s innovative approach to the interplay between philosophy, religion, and theology.³³ The shared focus on lived experience, which phenomenology emphasizes, forms a point of contact between the two. In Tanzella-Nitti’s theoretical perspective, metaphysical and ontological insights integrate and transcend phenomenological analysis. Similarly, Scheler’s “Catholic” writings and philosophy of religion do not neglect

³¹ A dialogue that does not merely outline areas of potential cooperation between religions, but one that has the courage to arise from faith itself—from the experience of God—to actively contribute to the promotion of a new humanism.

³² In 1921 Max Scheler published *The Eternal in Man*, which collects his writings on the philosophy of religion and marks a turning point in the development of this research perspective. In the following, the quotations of Scheler’s texts will always be our translation from the Italian edition. On Max Scheler’s philosophy of religion see in particular the masterful study by G. FERRETTI, *Max Scheler. 2. Filosofia della religione*, Vita e Pensiero, Milano 1972. We also refer to G. DE SIMONE, *L’amore fa vedere. Rivelazione e conoscenza nella filosofia della religione di Max Scheler*, San Paolo, Cinisello Balsamo 2005. Regarding the relationship between philosophy and theology as it emerges from Scheler’s “system of conformity,” see G. DE SIMONE, *Teologia filosofica e filosofia della religione. Spunti scheleriani e prospettive di ricerca*, in G. DE SIMONE, A. NUGNES (eds.), *Dare ragione della fede. In dialogo con Carlo Greco S.I.*, Il Pozzo di Giacobbe, Trapani 2017, 31-43.

³³ For example, see TANZELLA-NITTI, *Teologia della Rivelazione*, 65-69, 50-59. In particular, note 10 on page 50 states: “In the subject under discussion here, Max Scheler’s work stands out for its originality and depth.” Additionally, see the critical annotations on page 69 for further insights.

metaphysical concerns. His phenomenology consistently gestures toward being, reinforcing its resonance with Tanzella-Nitti's research trajectory.

Beyond these parallels and distinctions, Scheler's criteria for rethinking the relationship between philosophy and religion remain highly relevant. They demonstrate how philosophy, in its pursuit of truth, can open itself to new and complementary perspectives. When thought is reconnected with life in its full depth, reason expands and articulates itself in synergistic ways—necessary not only for advancing knowledge but also for grasping the human condition in its deepest truth.

1. Redefining the Field of Inquiry

The cultural context of Scheler's reflections bears a striking similarity to our own: a time marked by profound uncertainty and precariousness. A pervasive sense of disorientation affects not only human existence in all its dimensions but also the bodies of knowledge that traditionally served as anchors for understanding reality, human purpose, and the meaning of action and thought. In the aftermath of the First World War, the task of reconstruction extended beyond rebuilding destroyed cities and public spaces; it necessitated the reconstruction of humanity itself.³⁴ But where could one turn for guidance in such a monumental undertaking?

Philosophy and religion—whose alliance in metaphysical knowledge had once shaped the cultural universe of the Western world—seemed, by this time, equally uncertain.³⁵ The metaphysical tradition had been destabilized by the very modernity that exalted reason's cognitive capabilities. Confronted with the challenge of grappling with foundations, both philosophy and theology needed to redefine their fields of inquiry and their capacities for exploring reality and truth.

Scheler believed that an authentic dialogue—free of any claim to superiority or subordination—was essential for reimagining the relationship between philosophy and theology. This reimagining would not only enable a better understanding of these disciplines but also allow their contributions to flow into the broader project of reconstructing

³⁴ See, in this regard, M. SCHELER, "The Reconstruction of European Culture: an Address" and "The Renewal of Religion", in IDEM, *The Eternal in Man*, 403-448, 107-127.

³⁵ Cfr. IDEM, "Religion and Philosophy", in IDEM, *The Eternal in Man*, 128-160.

humanity.³⁶ The indispensable condition for such dialogue is the recognition of the specificity of both philosophy and religion: their autonomous emergence within the human spirit, their unique demands,³⁷ and their embodiment within relationships that define their origins and boundaries.

2. *Beyond Traditional Solutions*

Scheler critically examined the “typical solutions” historically proposed for the relationship between philosophy and religion, identifying their vulnerabilities while exploring the openings they offered for new insights.³⁸ His philosophical reflections engaged deeply with the history of

³⁶ Scheler directs his invitation particularly to religion, urging it to open up and offer what is inherently its own. He highlights a cry for help arising from a humanity that has profoundly experienced its own frailty, a deep sense of lack, and an emptiness of heart. While these feelings may inspire an awakening and the desire to see clearly, they are insufficient on their own to provide the answer (cfr. SCHELER, “The Renewal of Religion”). “We should expect at all events an age of *extreme vitality* in matters of religion”, Scheler writes, “an age characterized by quite new kinds of mighty spiritual conflicts. But for precisely that reason, in the coming age every existing positive religion and Church must cease to be a mere ice-box for old truths [...] the person who wishes merely to *preserve*, or at the most defend, his religious position: if he dare not see in it the positive means of salvation for suffering humanity, and will not extend to humanity this means in a gift of joy and love, then he will find even his more modest goal of self-preservation *no longer* attainable. [...] But the time will come when unbelief’s sterile negation and the apparent tolerance of religion by lazy indifference will have come to an end. Then religion will once again be recognized and attacked from all sides for what it is—the highest concern of man. Then will be an end of the easy life. And with it there will cease the perfunctory frontier-patrol of one’s values and ideas, or the airtight, quasi-paralysed self-mummification in the coffin of exclusive organizations and places apart. Only one alternative will then be valid—either one must gird up one’s loins and with open, succouring arms give, present or lavish something on humanity, heal its heart’s open wound, or one must be prepared to find that the world, though thirsting feverishly for religion, believes one has nothing to give [...]. But in the latter case one must also be prepared to find that that gesture of pride and avarice brings on the destruction of the very things which one wished to preserve. Any positive religion which today fails in the above sense to carry out its spiritual mission, to bear new and living witness to its cause in every way, is most certainly doomed to defeat and decline in the spiritual struggles which we have before us” (*ibidem*, 121-122).

³⁷ Cfr. *ibidem*, 146-170.

³⁸ Cfr. SCHELER, “Religion and Philosophy”, 130.

Western thought and culture, seeking in the past both new and ancient paths to be rediscovered.

He discussed the “system of identity”—whether partial or total—which had historically shaped the understanding of philosophy and religion but often led to their conflation, whether through rationalism or traditionalism. He also critiqued the “dualism” rooted in Kantian thought, which was later exacerbated by positivism’s exclusive exaltation of empirical sciences as the only valid form of knowledge.³⁹

Scheler highlighted the critical points in these systems, using them to clarify the distinctions and specificities of religion and philosophy. The two domains are marked by different “impulses,” “methods,” “purposes,” and “objects,”⁴⁰ each corresponding to distinct experiences of reality and ways of accessing truth.⁴¹ Underlying Scheler’s thought is the idea of the person as a relational being, a living unity of intentional acts through which relationships with being are realized. This relationality is multiform, reflecting the differentiated ways in which being manifests itself and becomes accessible.⁴²

Philosophy and religion, then, must be distinguished as distinct perspectives on the same object—an object that reveals itself differently depending on the approach of the subject, who can adopt multiple ways of engaging with reality. Just as colors are perceived only through sight and flavors through taste, each domain of reality and sphere of being

³⁹ “Doctrines of the relationship between religion and philosophy fall into two categories: those which assert a total or partial *identity* of essence between religion and that part of philosophy called since Aristotle the ‘prime philosophy’ or later metaphysics, and those which assert an essential *difference* between religion and philosophy” (*ibidem*). For Scheler’s detailed examination, refer to pages 130-146.

⁴⁰ Cfr. *ibidem*, 146-147.

⁴¹ Contrary to the subjectivism inherent in modern theoretical conceptions, Scheler asserts that it is not cognitive and spiritual acts or operations that determine the ontic realm; instead, it is the being of the object that governs the manner of participation in it.

⁴² The “theory of the spheres of being” underpins the multiform nature of knowledge, corresponding to the varied ways in which reality is apprehended. For a deeper exploration of this cognitive theory—particularly its articulation of the relationship between thought and life and the affirmed centrality of the person—see DE SIMONE, *L’amore fa vedere*, 34-39.

requires a specific intentionality—a unique openness of consciousness elicited by the object as it reveals itself. Scheler referred to this as the “logic of meaning,” the intrinsic laws that govern intentionality’s direction and development.⁴³ The intentional logic of philosophical inquiry differs from that of religious intentionality, as Scheler explored memorably in his *Phenomenology of the Essence of Religion*.⁴⁴

Religious acts are characterized by a tension toward what is perceived as salvation. Religions invariably present themselves as pathways to salvation, and the tension within religious experience is precisely the search for fullness. Religion—writes Scheler—“is founded in the love of God and longing for a final *salvation* of man himself and all things. Religion is thus pre-eminently a *way of salvation*. The *first* intentional object of the religious act is [...] the *summum bonum*”.⁴⁵ The purpose of religion “is the *salvation of man* through a communion of life with God-divinization”.⁴⁶ The goal of religious experience is “the salvation of man through vital communion with God”, and together with him the community of which he is a part, the whole of humanity. “*The God of religion is the god of the saints and the god of the people*. The fount of all religious truth is not scientific utterance but faith in the words of the *homo religiosus*, the ‘holy man’”, that is, of the one who experiences a “peculiar, real and vital relationship to the divine as the eternal source of salvation”.⁴⁷

While the God of religion and the foundation of the world are *identical* in reality, “as *intentional objects* they are *different in essence*”.⁴⁸ The *ens a se* of metaphysics is here grasped as the supreme good within a relationship in which the subject is affectively engaged. The traits of the God of religion retain this affective tone, reflecting the *pathos* of a relationship oriented toward the supreme good.⁴⁹

⁴³ Cfr. for example SCHELER, “Religion and Philosophy”, 160.

⁴⁴ Cfr. IDEM, “The Essential Phenomenology of Religion”, in IDEM, *The Eternal in Man*, 161-331.

⁴⁵ IDEM, “Religion and Philosophy”, 138.

⁴⁶ *Ibidem*, 134.

⁴⁷ *Ibidem*.

⁴⁸ *Ibidem*.

⁴⁹ Cfr. *ibidem*, 149.

3. *Conformity Between Philosophy, Religion, and Theology*

The affective dimension does not diminish the cognitive value of religious experience, as Scheler argued that “love is the root of knowledge.” His philosophy demonstrated the value of emotional involvement in the process of knowing.⁵⁰ Nothing can be known—or even perceived—without a foundation in feeling. Affective perception holds absolute priority in the cognitive process, serving as its grounding tone and the perspective through which things exist for us. Religious knowledge, with its strong affective component, reveals the uniquely human mode of knowing.

While Scheler opposed any traditionalism that treated metaphysics as a mere philosophical transposition of religious concepts, he underscored the priority of religion and its distinctive approach within the human spirit.⁵¹ The necessary distinction between philosophy and religion, and the recognition of their autonomous origins, does not preclude demonstrating their convergence and collaboration. As Scheler noted, metaphysics and religion both point to an identical reality that gives ultimate meaning to their respective objects. There is “a connection lying in the nature of the intentional *objects* [...] a connection of the respective intentions in the human mind and a possible connection of the two intentional objects in one and the same reality. For *a priori* this much is clear: the essential peculiarity of the absolutely real—the reality underlying all things real—must of necessity be that which decides the salvation or non-salvation of all things, including men. It is, so to speak, the last court of appeal for

⁵⁰ See in particular M. SCHELER, *Love and Knowledge*, in *On Feeling, Knowing, and Valuing: Selected Writings*, ed. by H.J. Bershady, University of Chicago Press, Chicago 1992, 147-165; IDEM, *Ordo Amoris*, in *Selected Philosophical Essays*, transl. by D.R. Lachterman, Northwestern University Press, Evanston 1973, 98-135.

⁵¹ “To the question of which is more original in its implementation—religious knowledge or metaphysical knowledge, both of which are constitutive elements of the human spirit—Scheler responds: I do not think there can be any doubt that the *religious* [knowledge] is the earlier, the more original [...]. The human being always ‘has’ some kind of credence and assumption concerning his own and the world’s *weal* or way of salvation before ever he adopts the metaphysical frame of mind. He ‘necessarily’ has this assumption, whether he will or no, and whether or not he is reflexively aware of it” (SCHELER, “Religion and Philosophy”, 152).

this salvation. And this is also clear *a priori*: the absolutely holy and divine, whose nature is to satisfy the longing of things, can only do this if it is in addition the absolute reality on which all else depends”.⁵² To achieve its purpose—“metaphysics and religion [...] must lead to one *identical* reality, a reality which lends real and ultimate meaning to the two essentially different intentional objects.”⁵³

This collaboration, which Scheler described as a “system of conformity,”⁵⁴ allows religion and metaphysics to join hands freely—without one overpowering the other. Philosophy acknowledges a form of knowledge distinct from its own, while religion and theology assert their truth without needing external justification.⁵⁵

This free relationship establishes the conditions for a spontaneous self-limitation of philosophy, which recognizes a form of knowledge distinct from its own and is willing to welcome it without succumbing to the temptation of assimilation. Similarly, religion and theology, liberated from the need for external foundations, are finally able to argue their truth claims within the dialogue with philosophy and the sciences.⁵⁶

Affirming the noetic nature of religious acts—that is, the cognitive value of religious experience—opens space for dialogue on the question of God, the question of the foundation. Metaphysics is no longer the base, the rational ground upon which the knowledge of faith is built. Instead, metaphysics meets theology freely, from a distinct perspective and a different experience.⁵⁷

⁵² *Ibidem*, 138.

⁵³ *Ibidem*, 139.

⁵⁴ “The thesis that religion (including natural religion) is independent and founded in itself does not exclude a definition of its relation to metaphysics which I call the *system of conformity between religion and metaphysics*, and which I would oppose to the above-named dualistic systems as well as to the systems of total or partial identity” (*ibidem*, 146).

⁵⁵ Cfr. *ibidem*, 150.

⁵⁶ Cfr. *ibidem*, 146-160.

⁵⁷ In this sense, “separating” entails a necessary distinction that avoids dualism and instead highlights the recognition of a profound correspondence and intimate connection between philosophy and religion. The concern raised by Tanzella-Nitti finds in this approach an answer that aligns with the direction he identified as essential (cfr. TANZELLA-NITTI, *Teologia della Rivelazione*, 69).

This encounter helps clarify and articulate the knowledge gained through religious experience, while simultaneously broadening our understanding of the foundation—of being itself—by integrating insights from affectivity. It recovers the original order of relationality, with lived relationships as the proper space for this knowledge. “Only metaphysics and religion together,” Scheler writes, “can provide a perception and representation of the eternal,” though both remain ultimately inadequate. “We cannot now avoid seeing”, Scheler writes, “that the most adequate possession of God, the maximal participation of our being in his, cannot be achieved unless we first attain to a *grand overview*, free from all contradictions and incompatibilities, of the religious God and the metaphysical ‘world-basis’ together”.⁵⁸

Religious knowledge is not reducible to mere emotion; it is full-fledged knowledge.⁵⁹ This implies that an ontology can be developed based on the knowledge emerging from religious experience—a comprehension of Being as it is disclosed in religious experience. This approach employs a phenomenological reading that maps a hermeneutic circularity between the ontology of the divine and the experience where this knowledge takes shape, originating from the very self-revelation of the object.

This connection between religious experience and ontology is far from foreign to twentieth-century philosophical reflection. For instance, Mircea Eliade, in reconstructing the archaic ontology found in the mythic-symbolic expressions of preliterate religions, underscores that metaphysics has much to learn from them.⁶⁰ A similar emphasis appears in Paul Ricoeur and Luigi Pareyson, particularly in the

⁵⁸ SCHELER, “Religion and Philosophy”, 141. “The *true* God is less empty and fixed than the God of metaphysics. The *true* God is less narrow and ‘human’ (life-like) than the God of simple faith” (*ibidem*, 142).

⁵⁹ The religious act is “*unity of operation* of the mind *trained upon the object*”, its essence is therefore not grasped by moving on a merely psychological plane. “Even the thinking comprised in the religious act (and, in our view, even forming the leading element) is embraced from the outset by the act’s specific, noetic unity of operation” (*ibidem*, 155).

⁶⁰ “The cardinal problems of metaphysics could be renewed through a knowledge of archaic ontology” (M. ELIADE, *Cosmos and History: The Myth of the Eternal Return*, transl. by W.R. Trask, Harper & Brothers, New York 1959, xii). Cfr. also M. ELIADE, *Patterns in Comparative Religion*, transl. by R. Sheed, Sheed and Ward, New York 1958.

hermeneutical developments of phenomenological philosophy. This philosophical tradition has the merit of restoring the primacy of the object and its self-giving within a lived relationship, as the condition that makes knowledge possible.⁶¹

III. *QUAESTIO DEI* AND *QUAESTIO DE HOMINE* IN LIGHT OF RELIGIOUS EXPERIENCE: MARGINAL CONSIDERATIONS

At the conclusion of this journey through Tanzella-Nitti's articulate argumentation and the insights drawn from Schelerian reflections, we offer a few considerations, framed as marginal notes. These are neither comments nor mere recapitulations of the themes addressed. Rather, they aim to highlight key intuitions and decisions that appear pivotal and, in our view, represent threads for potential avenues of further inquiry.

First, it seems essential to emphasize that beginning anew from religious experience allows us to articulate the relationship between philosophy and theology without reducing one to the service of the other. Theology does not dictate the boundaries of philosophy, nor does philosophy operate as a subordinate tool for theological aims. Instead, both are invited to rediscover their original source in lived experience—within that foundational relationship which serves as the womb of all other relationships. In this way, the question of being and of the ultimate foundation can be explored with new accents and developments. Freed from the rigidity of closed theoretical systems and their claims of completeness, the understanding of being emerges as a dynamic process that traverses existence and history. It connects with the search for meaning, the experience of meaning as given and received, and the continuous interpretation of reality and understanding of truth that shapes human existence.

Religious experience, distinct from institutional religions though constituting their essential core, appears as the original and defining experience of what it means to be human. It is the “fact” that coincides

⁶¹ Cfr. P. RICOEUR, *Existence and Hermeneutics*, in *The Conflict of Interpretations: Essays in Hermeneutics*, ed. by D. Ihde, Northwestern University Press, Evanston 1974, 3-24; L. PAREYSON, *Ontologia della libertà. Il male e la sofferenza*, prefazione a cura di G. Riconda, G. Vattimo, Einaudi, Torino 1995.

with the very reality of the person in all their dimensions.⁶² It stems from an openness—a reaching beyond oneself that originates in the innermost depths of one’s being, from that which constitutes and generates the person at their root, the inexhaustible source, the mystery that intimately inhabits and infinitely surpasses them.

Another important consideration concerns the implications of this approach: when one touches the depths of human experience, disciplinary boundaries become remarkably porous without dissolving entirely. Similarly, the distinctions between interpretative categories and models blur. This “encroachment”⁶³ corresponds to the very nature of humanity and the possibility of knowledge itself.⁶⁴

Immersing oneself in the living reality of religious experience—with its radical engagement and unifying orientation for life—undermines rigid divisions of spaces and categories (e.g., transcendence vs. immanence, historical vs. transcendental). What emerges instead is a weaving together of dimensions and domains that, while maintaining their distinctiveness, appear intertwined and necessarily demand to be thought of together. This reflects a logic of “double thoughts,”⁶⁵ or,

⁶² This is the interpretation of religious experience—or more precisely, the experience of God—offered by the Spanish philosopher Xavier Zubiri, who begins from a phenomenological perspective and arrives at a metaphysics of reality. See X. ZUBIRI, *Man and God*, transl. by J. Redondo and ed. by T.B. Fowler, University Press of America, Lanham 2009. For a detailed presentation of Zubiri’s thought, refer to P. PONZIO, *Verità e attualità. La filosofia dell’intelligenza in Xavier Zubiri*, Edizioni di Pagina, Bari 2007. It may also be helpful to consult T. TRUPIANO, A.M. VITALE, *Il vincolo del reale. Percorsi di riflessione a partire da Xavier Zubiri*, Il Pozzo di Giacobbe, Trapani 2019, particularly DE SIMONE, *Il fatto religioso e l’uomo come esperienza di Dio in Xavier Zubiri*, 203-220.

⁶³ The reflections offered by Stefano Bancalari in his work *Fenomenologia della religione. Parole chiave* (Morcelliana, Brescia 2024) strike us as both illuminating and insightful, particularly the discussion on the term “sovrapposizione” (“overlapping”) found on pages 109-119.

⁶⁴ The debate on complex thought is particularly noteworthy in this context. See M. CERUTI, *Il tempo della complessità*, Raffaello Cortina Editore, Milano 2018; M. CERUTI, F. BELLUSCI, *Abitare la complessità. La sfida di un destino comune*, Mimesis, Milano 2020; and E. MORIN, *L’avventura del metodo. Come la vita ha nutrito l’opera*, ed. by F. Bellusci, Raffaello Cortina Editore, Milano 2023.

⁶⁵ We refer to I. MANCINI, *Frammento su Dio*, ed. by A. Aguti, Morcelliana, Brescia 2000, as well as to Romano Guardini and his concept of “polar opposition” as a key to understanding the concreteness and truth of reality.

if preferred, the logic of paradox,⁶⁶ which the human-divine form of Christian revelation attests so marvelously.

A theology that reconnects with the experience of faith and dares to relinquish rigid conceptual frameworks not only broadens its horizon of understanding but also reclaims the speculative power of contemplating mystery. Such a theology can assist philosophy in rediscovering the question of ultimate foundations, reformulating metaphysical inquiries, and expanding the understanding of the human person. It does so without betraying human finitude or losing touch with the concreteness of reality, with its struggles and tragedies.

The *quaestio Dei* and the *quaestio de homine* are intimately connected in a dialogue that inevitably extends to engage other fields of knowledge and the sciences. This dialogue—exemplified so skillfully by Tanzella-Nitti—reaffirms the inexhaustibility of the human person and their irreducible dimension of transcendence as both “creature” and “child.” It opens a perspective that allows for imagining and fostering a new humanism.⁶⁷

⁶⁶ See G. LORIZIO, *La logica del paradosso*, Lateran University Press, Città del Vaticano 2001. Also, refer to S. GABURRO, A. SABETTA (eds.), *Elogio della porosità. Per una teologia con-testuale. Miscellanea di studi per il prof. Giuseppe Lorzio*, Studium, Roma 2024. Particularly noteworthy are the insights offered in S. Gaburro’s essay, *Una teologia dai confini porosi... e mondana perché cristiana*, 157-178.

⁶⁷ It is in this direction that the dialogue between religions can be envisioned and fostered, grounded in a deeper understanding of religious experience and the ultimate foundation that makes it possible. See ASSOCIAZIONE TEOLOGICA ITALIANA, *Il dialogo tra credenti: profezia di pace*, Glossa, Milano 2023, particularly G. De Simone’s contribution, *Il dialogo: paradigma dell’esperienza religiosa*, 69-101.

HOW THE NEW SCIENTIFIC STUDIES OF RELIGION IMPACT ON FUNDAMENTAL THEOLOGY

LLUIS OVIEDO

Pontifical University Antonianum, Rome

ABSTRACT: Fundamental theology can be conceived in different ways and styles. The most extended and successful model offers a deep engagement with the study of Revelation and builds on it as the most solid basis for theological development. An alternative model assumes a more apologetic stance and tries to better assess what contributes and what hinders Christian credibility. Inside this second model, recent scientific research on religion becomes relevant, in both senses of the apologetic attention: as a critical approach rising many doubts and, in a positive way, as such developments invite to dialogue and can assist in better knowing about the formation of beliefs and religious attitudes. All this certainly demands focused attention from a Fundamental Theology conceived more as a “theology from below”, or assuming current challenges and opportunities.

KEYWORDS: Fundamental Theology, Scientific Study of Religion, Cognitive Science of Religion, Apologetics, Evolutionary Religious Cognition.

RIASSUNTO: La Teologia fondamentale può essere concepita secondo modi e stili diversi. Il modello più diffuso e di successo è caratterizzato da un impegno profondo nello studio della Rivelazione, per fare di essa la base più solida per lo sviluppo teologico. Un modello alternativo assume una posizione più apologetica e cerca di valutare meglio ciò che favorisce e ciò che ostacola la credibilità della fede cristiana. All'interno di questo secondo modello, la recente ricerca scientifica sulla religione diventa rilevante per l'apologetica, in due sensi: come approccio critico che pone molte questioni e, in senso positivo, in quanto tali sviluppi invitano al dialogo e possono aiutare a comprendere meglio la formazione delle credenze e degli atteggiamenti religiosi. Tutto ciò merita certamente un'attenzione mirata da parte di una Teologia fondamentale concepita maggiormente come “teologia dal basso”, ovvero capace di assumere le sfide e le opportunità attuali.

PAROLE CHIAVE: Teologia fondamentale, Studio scientifico della religione, Scienza cognitiva della religione, Apologetica, Cognizione religiosa evolutiva.

SUMMARY: I. *Introduction*. II. *Fundamental Theology Recovers its Apologetic Origins and Vocation*. III. *Learning from the Scientific Method in the New Study of Religion*. IV. *Theologically Relevant Contents in Cognitive and Evolutionary Sciences of Religion*. V. *Concluding Remarks*.

I. INTRODUCTION

Several theologians, including of course our colleague Giuseppe Tanzella-Nitti, have in recent years ventured into a committed dialogue with scientific developments. Such an engagement has given rise to a sub-discipline, “Science, Religion and Theology”, with specialised journals, book series, specific courses and a considerable bibliographical production. We can speak of a growing tradition that has seen different styles, proposals and developments in many directions for at least half a century. This engagement has been more intense in the fields of physics and cosmology, biology and neuroscience. It is less clear when science becomes more interested in the study of human beings, and still less when it seeks to explore the religious mind and behaviour. Theology can be somewhat embarrassed by the new scientific approaches to religion, as our colleagues try to unravel the mysterious world of beliefs and attitudes in which theologians are involved. It is as if we are trying to come to terms with ourselves when we enter the troubled waters of the scientific study of religion. There is almost a ‘conflict of interest’ in trying to engage with colleagues who happen to be studying ourselves and our own beliefs.

However, this difficulty should not prevent theologians from dealing with this new brand or sector in the study of religion. In fact, religion has been the object of scientific research for at least fifty years, both in the sociology and in the psychology of religion, using a decidedly scientific method, that is, a method based on the collection of empirical data, their analysis using the best statistical tools, and their interpretation within the strongest theoretical framework, the one that provides more heuristic power.

The most recent additions to the scientific study of religion are: the cognitive approach, which tries to describe the mental structures and biases that allow the formation of religious beliefs and perceptions; the biological and evolutionary approaches, which observe religion as a cultural expression that helps subjects, groups and populations to better adapt themselves; and the therapeutic approach, which tries to unrav-

el the links between religion, health and well-being. These fields have grown over the last 20 years, with hundreds of new publications, their own specialised conferences, and the emergence of departments and research programmes that focus on these issues, always using a scientific methodology. This new body of research contributes to what can be called the non-theological study of religion.

Since it is non-theological, we might be suspicious of its interest and value for theologians, even for those working in the field of Fundamental Theology (henceforth: FT), a theological branch that could be more focused on exploring foreign territories and looking for alternative approaches to religion and faith. In fact, the theological reception of these studies is scarce, if not completely neglected. Most theologians, including those in FT, pay very little attention to what is going on in these fields, whose theories and views on religion they probably do not understand, despite their claims that they can explain religion much better than those who profess and live it. I have been attending several conferences on these issues, feeling quite like an orphan and a lonely theologian in the middle of a rather wild and threatening territory.

My experience over many years of interacting with cognitivists and evolutionists who study religion has been varied, sometimes negative, on other occasions positive and constructive. Surely FT can learn from this academic endeavour, even if it might involve some risks and disappointments, as I will try to make more explicit. In any case, this programme tries to follow the advice given by Pope Francis in his document *Veritatis Gaudium*, which reassesses the program for theology to move on, to explore alternative areas beyond a self-referential model, and to engage with other disciplines and studies in an attempt to learn and become more relevant in a very different cultural and academic milieu.

In keeping with the proposed title, this paper aims at providing an account or assessment of what FT can learn from all the research developed over the last 20 years in cognitive and evolutionary approaches to religion, which often go hand in hand and are quite well established. This account will, firstly, be cautious about apologetic issues; secondly, it will focus on the methodological aspects that can offer some lessons for theologians. The third level of the proposed analysis will deal with contents or developments that could be of interest for this theological field. More specifically, I propose to pay more attention to the following

issues: the cognitive conditions associated with the experience of believing; the question of the evolution of religious beliefs or religious culture; issues of intuitive and reflective religious cognition; embodied and embedded religion. The stated aim is to assess the extent to which this field of research can be useful for a theology that seeks to better understand the conditions that affect the credibility of the Christian message, and to check whether these sciences can help to better clarify our own view of this faith.

II. FUNDAMENTAL THEOLOGY RECOVERS ITS APOLOGETIC ORIGINS AND VOCATION

FT was born out of the remnants of traditional apologetics, a theological discipline with its own identity and style, and a long history or tradition. Unfortunately, after the Second Vatican Council, such a model was abandoned or deemed unworthy of an updated theological programme, more focused on revelation and less concerned with cultural developments, debates and struggles, or on addressing those who criticised or contested the Christian faith and its doctrines. This decision does not mean that our faith is no longer challenged or criticised; such an attitude would reveal a form of “magical thinking”: because one no longer considers it necessary to engage in an apologetic style, the threats and voices against the Christian faith have become insignificant or irrelevant, no longer posing a threat. I am still not sure what reasons convinced our colleagues of the sixties and seventies to abandon the apologetic dimension of theology in general, and even more so of FT in particular, at a time when it was more needed than ever, when the challenges facing the faith were increasing and several fronts were opening up at the same time: in the social and cultural field, as secularisation trends spread; in the historical and critical revision of the Church’s past and its mistakes; in the tensions with other religions and spiritual forms; in the growth of a cultural environment hostile to faith; and, not least, in the tensions with science and its cultural dominance. Why was the FT absent from all this urgent work of addressing all these issues that made the Christian message less credible? Considering these questions, a first task in the proposed interaction is to discern what is really relevant to theology in all the immense production of the cognitive sciences, even when applied to religion.

For those who are still convinced that apologetics is a major concern of FT, there are not a few issues to engage with, and certainly the area of “science, religion and theology” is one that keeps the more engaged part of theology busy. This claim does not imply an exclusively defensive position on our part, but one that involves – as with any good apologetics – a richer use of new arguments to make the case for Christian faith and its updated relevance. This is certainly the case with the cognitive and evolutionary sciences applied to the study of religion: there are many versions that have tried to reduce religion to simple mental dynamics or adaptive strategies, forgetting many other aspects of a very complex and multifaceted phenomenon that can hardly be reduced to a single aspect. Moreover, in several cases, some colleagues have used this new axiomatics to discredit religious beliefs, reducing them to mere sub-products of our normal mental activities, or expressions that lack cognitive content.¹

The proposed engagement at an apologetic level is a first step in a process that tries to take these developments into account, or avoids ignoring them as irrelevant to us because their approach to religion seems so poor and disappointing. It would be wrong to neglect these new developments on religion and their attempts to explain religious belief. One reason is that these ideas have become more than academic, and have even been used to openly criticise religion, as in the case of Daniel Dennett.² If our colleagues manage to offer more convincing explanations of religion than, let’s say, the theologians and philosophers, then we have a big problem.

Confidence in the value of one’s own tradition is not good advice at a time when religion and Christian faith are the subject of intense scrutiny and a desire to control what might appear to be too wild a social and spiritual phenomenon. Such a feeling justifies some attempts to tame religion, which at the same time require a better analysis and knowledge in order to serve this purpose. It would be wrong, however, to adopt a purely defensive attitude in order to counter such an impoverished and reductive view. The apologetic stance always offers the

¹ J. BERING, *The God Instinct: The Psychology of Souls, Destiny, and the Meaning of Life*, Nicholas Brearley, London 2011, 6.

² D.C. DENNETT, *Breaking the Spell: Religion as a Natural Phenomenon*, Viking, New York 2006.

possibility of defending the Christian faith against alternative proposals, or of playing the rational game developed by our colleagues, that of showing how the Christian faith transcends and becomes the right way to give meaning and hope.

The apologetic fronts opened by the cognitive and evolutionary sciences of religion are several, as are our strategies for dealing with them. The main one, for example, is the one already mentioned, in which they try to explain away religion as a secondary and sometimes parasitic mental activity, of little or no use and far from providing a correct account of reality. FT needs to answer this critical question in order to show that the Christian faith claims to be true insofar as it offers an account of God, man and the world that is more in tune with an integral view of reality, with recent developments in science, with ethical concerns, and with a programme aimed at sustainability. We must be clear about the cognitive content of the Christian faith, and avoid falling into the trap of our colleagues who point to its secondary value. We can draw on the best writers in the field of philosophy of religion, such as Richard Swinburne or Alvin Plantinga, among many others, who have built strong cases and arguments for the Christian faith and its central tenets. Indeed, the emphasis on cognitive content becomes a reminder, in terms of reductive positions, of the great difference that confessing that Christ is risen and alive makes in contrast to opposing positions. The point is that – in contrast with the most reductive versions of cognitivists – the central contents of Christian faith make a difference in the lives and values of those confessing them; they are by no means secondary, as they can sign the change from a meaningless life to a life full of meaning and purpose.

This is perhaps the most important apologetic issue, but there are several others. To mention just a few: regarding the freedom to believe, or that believing is not just something automatic and determined; regarding the reflexive aspects of believing, beyond the intuitive and quick thinking models, prone to error and overrepresentation, that are often applied in this field;³ or the issue of the deep dependence of Christian

³ LL. OVIEDO, *Religious Cognition as a Dual-Process: Developing the Model*, «Method and Theory in the Study of Religion» 27-1 (2015) 31-58; <https://doi.org/10.1163/15700682-12341288>.

faith on neural and cognitive circuits, ignoring other dimensions that are necessarily involved in this activity in a more holistic way.

The apologetic stance can draw on a repertoire of strategies. The most important of these take place within their own field and play the same game. For example, we must pay more attention to the scientific quality of their developments. Sometimes the empirical evidence they present is rather scarce and exaggerated. Then their analysis cannot pass more stringent tests of the scientific method. Their conclusions often imply some extra-limitation with respect to the limits of scientific rules, or are just hypotheses; and quite often the theories that support their models are partially outdated, as is the case with computational models of the mind; or some theories of human evolution that have served to cement their programmes.

III. LEARNING FROM THE SCIENTIFIC METHOD IN THE NEW STUDY OF RELIGION

FT is concerned with the theological method, and with determining the best ways to access the content of Christian revelation and the experience of faith, so that it continues to make sense in different historical stages and cultural contexts. This method can be renewed, and nothing excludes trying alternative approaches to its subject and learning from other disciplines that apply their specific ways of knowing religious phenomena.

Theology can perceive the approach to religion of cognitivists and evolutionists as somewhat peculiar and far removed from its own methodology. A first contrast can be seen between the bottom-up approach of most scientific methods and the mostly top-down approach of theology. The question is to what extent theology can change its perspective and learn from the alternative ways of approaching religion. For example, a recent tendency has been to explore so-called “lived religion”, or to get closer to the lived experiences of people who feel their religious beliefs and practices in particular ways.⁴ There is some talk of “lived theology”, but it is still a rather limited tendency, often linked to liberation or political theologies;⁵ much more is needed to broaden it.

⁴ N.T. AMMERMAN, *Studying Lived Religion; Contexts and Practices*, New York University Press, New York 2021.

⁵ C. MARSH, P. SLADE, S. AZARANSKY (eds.), *Lived Theology: New Perspectives on Method*,

Theology can learn from the alternative methods used in cognitive and evolutionary studies of religion. The main principle that guides such an approach is the need to construct the best explanations based on empirical evidence and a constant process of testing and experimenting with hypotheses, within a perspective that assumes a high degree of fallibility, or the need to revise and correct what does not work or does not find sufficient evidence. This approach may seem far removed from the theological method, which almost always proceeds as a hermeneutical exercise on canonical texts or classics of theological production. We can interrogate these texts from the past in search of answers to our present questions and challenges, expecting that the wisdom accumulated in them will provide us with insights for dealing with our present problems. In general, theological production does not engage in an analysis of the empirical conditions in which Christian faith is lived or encounters major setbacks and difficulties.

The question of the possibility of designing a theology more “from below” and inspired by the programme of “lived religion”, and of its usefulness and application, is still open. There are some attempts, mostly in the field of practical theologies, which use empirical methods to better understand how Christian faith can be proclaimed and lived in uncertain environments. This programme gathers followers in a dedicated society, the *International Society for Empirical Research in Theology* (IS-ERT), which meets every two years in a European country. But we are a long way from convincing mainstream theology of the viability and goodness of such methods, and I am not sure that the cognitivists will help us to learn how to better use such methods and how to better approach lived religious experience. However, we can learn some lessons from our colleagues who are so far from standard theology.

A first lesson, already mentioned, relates to the fallibility principle, or the idea that theories can have a short life if they are unable to gather sufficient empirical or experimental evidence. I recently attended a conference of the *International Association for Cognitive and Evolutionary Science of Religion* (IACESR), and a colleague, Robert Ross, spoke about “zombie theories” in the field, or theories that, like the walking dead, are still cited and enjoy some recognition, even though they have been rejected

Style, and Pedagogy, Oxford University Press, New York 2017.

because of their lack of evidence or because of the flaws discovered in the analyses they have been subjected to. In theology we are very far from this critical attitude. It is difficult for us to identify theological proposals that do not pass the test of evidence and even of some kind of empirical checks or controls, and that should be discredited as useless for a living theology. A few examples may illustrate what I mean. The first concerns the flawed attempts to deal with secularisation in several theologies in the sixties and seventies, which left their mark for several decades. These views invited a positive reception of the secularisation process and were incapable of perceiving its very negative consequences and of critically preventing a naïve approach. Indeed, theology in those years was ill-prepared to deal with and cope with secularisation, among other things because it misunderstood its negative effects; because of its speculative method and its unwillingness to learn from sociological descriptions that could alert us to such negative trends. A similar dynamic of misperception could be seen in very liberal theologies, unable to deal with religious decline in Western areas; or in political theologies, poorly inspired by flawed theories and lacking field work on populations that could suffer more. The extreme cases of truly deadly theologies, such as those that came to justify and even support Nazism, Fascism or Communism, could teach us about the risks that theology runs when it forgets its intrinsic fallibility, the need to constantly reassess its effects, and the call to revise and correct what has gone wrong. As a result, several theological developments in different areas have led to confusion and wasted energy.

The big question that still looms within FT is to what extent methods based on observation, measurement, testing, and open to failure and correction can become normative for those who apply a broad hermeneutical approach. Even in this case, the risks of ‘over-interpretation’ are relevant and should alert us to the need to refine the theological method.⁶

The other big question is how we can integrate empirical data into a theological discourse. We can also learn from our neighbours in these parallel attempts to explain religion. We learn from the methods of the

⁶ I.A. REED, *Social Theory and Overinterpretation*, «Distinktion: Journal of Social Theory» 25-2 (2023), 183-207; <https://doi.org/10.1080/1600910X.2023.2258289>.

social sciences how to collect data in the right way, taking care to get a representative sample; how to avoid bias, taking care of the ethical issues – now very demanding in any research with humans; and how to analyse them in the right way, using the best available tools – statistical and otherwise. Then we need to distinguish between different theoretical frameworks. It is important to be aware of what we are looking for, and probably the theological interests and aims are quite different from those that govern the research programmes of social scientists, cognitivists and biologists applied to human behaviour. However, it would be interesting to maintain some methodological points, such as starting our research with one or more questions, making explicit the issues that guide our search, formulating some hypotheses, and then designing the research in a way that allows us to answer or verify these hypotheses.

For example, we can test the extent to which religious beliefs and practices are related to empathy, and which religious styles are more associated with this feeling. We can design an instrument or questionnaire using different standardised scales to measure the variables we want to assess, such as religiosity, spirituality and empathy or prosocial attitudes. We will then select our target population to distribute this questionnaire and collect the data that will allow us to carry out a focused analysis, taking into account the questions that we have previously defined. So far, everything could be seen as not being specifically theological. Theology intervenes at the level of interpretation once the data have been analysed, and so, depending on the results, we can develop a more accurate Christian anthropology that takes stock of these data and better describes the human condition, created in the image of God, failed and redeemed by grace.

A great advantage of using a more rigorous scientific method is that it allows us theologians to enter into conversation with our colleagues in those other disciplines that deal with religion, to try to explain it better. If we cannot show data and accurate analysis, then it would be harder to be listened by those who play a different game and who care less about old traditions that are less authoritative to them than they are to us. And we can build a theology more “from below”, better acquainted with the lived experience of Christians, and therefore more meaningful and closer to reality.

IV. THEOLOGICALLY RELEVANT CONTENTS IN COGNITIVE AND EVOLUTIONARY SCIENCES OF RELIGION

It is not only the method used in these sciences that becomes interesting for a more engaged theology, but several contents or motives can arouse theological interest and lead to useful applications. As already mentioned, the main topics to be considered are: the cognitive conditions associated with Christian faith and belief; the question of the evolution of religious beliefs or religious culture; questions of intuitive and reflective religious cognition; and religious cognition, embodied and embedded.

a. Belief and Believing

Faith as a disposition to believe and trust belongs to FT, which seeks to understand it as the foundation of all theology and works to improve the conditions that make the Christian message credible. This theme overlaps to some extent with current research in the cognitive science of religion, which is very interested in the formation of religious beliefs and in explaining how humans have a natural tendency to adopt such representations of “supernatural agents”. But the focus is quite distant. For theologians, this ability is an anthropological trait that makes us attuned to divine revelation and capable of accepting its salvific message. For cognitivists, this ability is often not so much a strength as a weakness or a limitation, in the sense of a mental activity that tends to generate over-representations of mysterious agents when we lack other explanations for phenomena beyond our grasp. On one point both sides agree: human beings are capable of conceiving religious ideas or attributing transcendent causes to the natural order; but the extent to which this capacity might be useful is another issue. Well, for many writers the usefulness has nothing to do with the religious or symbolic realm, but only, following a Durkheimian inspiration, with the social need for greater cohesion and increased moral commitment to one another.⁷

But here we can find a kind of “exaptation”, in the sense that theories born in another disciplinary realm and for another interest and

⁷ For an overview on this relationship, see: LL. OVIEDO, *Religious Attitudes and Prosocial Behavior: A Systematic Review of Published Research*, «Religion, Brain & Behavior» 6-2 (2015) 169-184; <https://doi.org/10.1080/2153599X.2014.992803>.

reason can find new life and application in another discipline, such as theology; and so theologians can receive the wisdom of the cognitivists to make the case for a human propensity to become religious or to transcend the material world. What is suspect in one realm becomes virtuous in the other, provided that we theologians are able to rescue these somewhat tainted views from our colleagues and are willing to show that such cognitive capacities enable us to transcend and to gain resilience and greater hope, or to perceive reality in a deeper, more meaningful and more beautiful way.⁸ The question is what we gain when we are able to transcend and become religious, and what we irretrievably lose when we lack this capacity.

The mental processes that provide access to transcendence are still being explored, and theories succeed and fail, with no clear solution. In the first wave, cognitivists pointed to a “hyperactive sense of agency” and the important role played by “theory of mind” or our innate ability to “read” other people’s minds and intuit their state of mind and humour. By combining these two mental faculties, we would be more likely to recognise “divine agents” with their own minds and intentions. However, there is little empirical evidence to support such theories. For example, some studies of people on the autistic spectrum, who typically suffer from an impairment in their ability to “read” other people’s minds, are on average as religious as neurotypical subjects.⁹

Recently, other theories have been added, such as that of “predictive coding”, or the ability to anticipate future states and to adapt to that anticipation. Apparently, this ability can be linked to our tendency to include the divine in this scenario in order to make it less unpredictable. Another recent addition compares religion to an imaginative game similar to “let’s believe”, capable of generating an alternative mental map that could represent some functionality at the social level.¹⁰

⁸ J. BARRETT, *Why Would Anyone Believe in God?*, AltaMira Press, Walnut Creek 2004; IDEM, *Cognitive Science, Religion, and Theology: From Human Minds to Divine Minds*, Templeton Press, West Conshohocken 2011.

⁹ Again for an overview: L. EKBLAD, LL. OVIEDO, *Religious Cognition Among Subjects with Autism Spectrum Disorder (ASD): Defective or Different?*, «Clinical Neuropsychiatry» 14-4 (2017) 287-296.

¹⁰ VAN LEEUWEN, *Religion as Make-Believe: A Theory of Belief, Imagination, and Group Identity*, Harvard University Press, Cambridge 2023.

Probably more helpful to us will be other studies of belief and believing that have moved away from the cognitivists who seek to unravel the mystery of the religious mind. Indeed, in the last 15 years there has been a growing interest in better understanding the process of believing – in general, not just religious believing – in all its complexity.¹¹ This process is not simply “computational” or the result of some probabilistic calculation, for it also involves emotions, cultural influences and other factors that weigh in this complex process. The point is that theology can learn from such studies and their attempts to better describe the process of believing and to better qualify Christian faith in relation to those other forms of believing that are now more accurately classified.

b. Cultural Evolution Applied to Faith and Theology

This is another interesting line of research with profound implications for FT. The idea that cultures evolve, and religions are no exception, might at first sight seem a truism. However, we may not be aware of the implications of such an observation. Many studies in the last 20 years point to the evolutionary and adaptive pressures that affect not only living beings, but also societies and cultural forms. This principle implies that religion must adapt to its own environment as a condition of survival. This claim has served to explain religion from a more biological and evolutionary perspective: religion makes sense in this framework to the extent that it makes subjects and social bodies more adapted, or more able to survive and reproduce in a more secure way. Once religion can be identified as an adaptive factor, it becomes a better understood phenomenon.¹² This could be positive for an engaged theology that seeks to show that religion does more good than harm in most social contexts, having refuted those – such as the New Atheists – who claim the opposite. But it could also smack of an excess of functional reduction, reducing religion to its adaptive functions and missing its own meaning and achievement.

¹¹ A Good example is the collective book: H.-F. ANGEL, LL. OVIEDO, R.F. PALOUTZIAN, A. RUNEHOV, R.J. SEITZ, *Processes of Believing: The Acquisition, Maintenance, and Change in Creditions*, Springer, Dordrecht 2017.

¹² J. FEIERMAN, LL. OVIEDO (eds.), *The Evolution of Religion, Religiosity and Theology: A Multilevel and Multidisciplinary Approach*, Routledge, London-New York 2019.

In addition to this critical question, studies of cultural evolution applied to religion and theology become an important inspiration for FT, or a theological gaze that seeks to reflect on its own tradition and elaboration. The point is that, according to this model, religion and its reflexive instance – theology – are subject to evolutive and adaptive pressures, and such a process helps to better follow the internal evolution of revealed texts, the formation of the biblical canon, and the development of Christian doctrine, always following the same paradigm: variations arising from the search for better expressions; selection of those forms that become more suitable and can withstand trials or historical struggles; and stabilisation, which gives rise to new variations, to pursue a continuous process of adaptation and renewal. Indeed, we can look at the history of Christian styles, models and theologies from this point of view: they were variations that found their way to adapt to changing social conditions and were successful in their approach, at least for some time.

Things are probably much more complex. In the first place, as several studies have shown, the process described is not one of mere adaptation to changing conditions, but one of influencing and changing those same conditions in such a way as to interact in ways that are transformative for both sides.¹³ In the same way that living beings interact with their environment in order to transform it or make it more suitable, in cultural processes the interaction with our social context often influences the same context and creates new conditions, or “cultural niches”. This search for new forms then sometimes becomes less adaptive or even counter-adaptive, despite its apparent initial success; or what was apparently adaptive for a time later becomes clearly dysfunctional. In any case, the study of cultural evolution applied to religion provides a heuristic framework for better understanding how theology itself has evolved and what factors have been involved in this complex process, something that could help us to make similar attempts in our time, in search of better theological expressions to make our faith meaningful.

¹³ K.N. LALAND, *Darwin's Unfinished Symphony: How Culture Explains the Evolution of the Human Mind*, Princeton University Press, Princeton 2017.

c. Intuitive and Reflective Religious Forms

Another issue in the cognitive study of religion concerns the different cognitive styles that can be observed in religious thinking and believing. It is well known that our minds operate with different cognitive styles: the first is fast, intuitive, prone to error, but quite efficient at many tasks that require quick reactions; the second is slow, reflective, and more suited to decision making or tasks that require more analysis. This distinction can easily be applied to the religious mind and to our ways of representing reality and introducing transcendent dimensions. It is clear that in many cases this mental activity is almost spontaneous, for example when we invoke God before a perceived danger, or when we represent divine action as punishing or rewarding our bad or good deeds. In other cases, religious beliefs require time and maturation, are nourished by enduring input, and rely on many other means.

This distinction helps to better address several issues in theological development, such as the sometimes difficult tensions between intuitive or spontaneous forms of religious belief and the need for reflective correction and adaptation to a standard Christian view; theology has a role to play at this interface, but it is far from easy and simple. Theological “incorrectness” is a common feature of religious cultures.¹⁴

This expression comes from what can be considered “theologically correct”, as a result of right and reflected cognition that uses more analysis and resources. The “wrong version” comes from a faster and less reflected religious representation, often fed by cognitive mechanisms that operate in a spontaneous way, such as the attribution of agency. A good example of this is “luck beliefs”, which often become entangled with standard religious beliefs about divine action.¹⁵

Theology should engage in a more careful activity to be aware of these cognitive difficulties and to have recourse to those cognitive

¹⁴ D.J. SLONE, *Theological Incorrectness: Why Religious People Believe What They Shouldn't*, Oxford University Press, Oxford-New York 2004.

¹⁵ D.J. SLONE, “Luck Beliefs: A Case of Theological Incorrectness”, in *Religion as a Human Capacity*, Brill, Leiden 2004; https://doi.org/10.1163/9789047401698_020.

analyses that help to discern what is becoming easier and more costly to believe, in order to ensure means of enforcing a faith that could become more helpful and closer to the truth, beyond simple emotional reactions.

This question becomes more pressing in recent times as we become more aware of the complexities involved in the process of believing, and how religious beliefs appear to be deeply embedded in a dense network of other beliefs and worldviews. It is likely that the distinction between the cognitive styles described is only a start, as this process is made more complex by cultural influences, emotional input, involved memories or current biases. Theology could learn from recent research on these complexities in order to better know and propose the Christian faith and to educate religious or spiritual forms of believing beyond the most immediate and intuitive forms.

d. Religious Cognition, Embodied and Embedded

Cognitive science itself is evolving, adapting to new discoveries and changing paradigms in the way we represent human cognition. This evolution is being driven, as we have seen, by an awareness of past theories that have failed to pass the tests of scientific rigour, or have lacked evidence. In this sense, a new cognitive model is slowly opening up, paving the way for a more accurate understanding of religious cognition. This change is inspired by the so-called *4e* cognitive models, the four e's corresponding to the terms: embodied, embedded, enacted and extended.¹⁶ The main idea is that human cognition is better represented as a complex process that involves one's own body, including emotions and our body members; our environment, natural, social and especially cultural; is able to project and change the reality we perceive; and is supported by various external means or ways of enforcing it.

For several years, a minority of scholars have been pursuing this alternative programme and trying to apply it to religious cognition.¹⁷

¹⁶ A. NEWEN, L. DE BRUIN, S. GALLAGHER (eds.), *Oxford Handbook of 4E Cognition*, Oxford University Press, Oxford 2018.

¹⁷ J. KRUEGER, *Extended Mind and Religious Cognition*, in *Religion: Mental Religion. Part of the Macmillan Interdisciplinary Handbooks: Religion Series* (2016), edited by N.K. Clements, Farnington Hills, Michigan: Macmillan Reference USA.

Such an endeavour means that our access to religious awareness and experience is less limited to some mental operations, similar to some computational mechanisms; and rather becomes the result of a complex system at more levels, and much harder to reduce to simple operations. This point invites us to pay more attention to the internal and external factors that could support religious perception. In this sense, it is clear that emotions play an important role. So do culture and other environmental factors. But perhaps more importantly, such a process is implemented through religious rituals and activities that provide enforcement and make the religious representation “more real”, as Tanya Luhrmann has recently described it in a fascinating book as a clear enactment activity.¹⁸

The theological implications are quite intuitive: Christian faith cannot be conceived as a purely individual, isolated mental activity, but as an experience deeply rooted in other dimensions and deeply connected with the way we pray and celebrate that same faith, which both nourishes and is nourished by the community and its commitment, the quality or intensity of our liturgies, and the quality of our theological arguments and discourses that seek to update the Christian message and make it more credible.

V. CONCLUDING REMARKS

Theology can always learn from other approaches to the study of religion. Some lessons are clearly negative: they teach us how not to understand religion, how to avoid reduction, bias and other pitfalls or shortcomings. But there are many positive lessons to be learned from this contact, after taking some risks. After all, as Pope Francis has said, it is better to take risks and even experience failures and mistakes than to repeat the same thing over and over again in the midst of a general religious decline and cultural irrelevance of Christian faith.

What is really disgraceful is a state of affairs in the theological academy in which very few are interested in what is happening in the sciences, in philosophy, and especially in the new scientific study of religion. This is not the case of our colleague Giuseppe Tanzella-Nitti, one of

¹⁸ T.M. LUHRMANN, *How God Becomes Real: Kindling the Presence of Invisible Others*, Princeton University Press, Princeton-Oxford 2020.

the professors of theology I know who has been most involved with science, after his own combination of scientific training as an astrophysicist and his expertise in theology, and very committed to updating and making more credible the Christian proclamation of salvation, as the main task of fundamental theology. His many publications and his constant interest in showing how this message can be given new relevance in a scientifically driven mentality make his contribution highly valuable in the international theological landscape. He is an example to follow and an inspiration to new generations of theologians, and an encouragement to all those who, like me, are engaged in a similar effort of dialogue between theology and science.

THE PERCEPTION OF *LOGOS UT RATIO* AND *LOGOS UT VERBUM* IN CREATION

A Reflection in the Context of the 1700th Anniversary of the Council of Nicaea

PAUL O'CALLAGHAN
Pontifical University of the Holy Cross, Rome

ABSTRACT: We examine the Biblical roots of the doctrine of divine creation through the Word, then the respective positions of Greek philosophers and Christian authors (in particular Plato, Philo of Alexandria, Plotinus and Arius), and finally the consolidation of the Church's definitive position on the matter at the Council of Nicaea (with Athanasius, Augustine and Thomas Aquinas, among others). We argue that the fundamental structure of a divine Logos (*logos ut verbum*) and a created world with its own intelligibility (*logos ut ratio*) is already present in Greek philosophical thought. However the teaching of Nicaea is critical in our understanding of the relationship between the creating Logos and the created logos. We finally draw some conclusions on the nature of the relationship between *logos ut ratio* and *logos ut verbum*.

KEYWORDS: *Logos*, Science, Creation, Theology, Council of Nicaea, Giuseppe Tanzella-Nitti.

RIASSUNTO: Esaminiamo in primo luogo le radici bibliche della dottrina della creazione divina attraverso il Verbo, poi le rispettive posizioni dei filosofi greci e degli autori cristiani (in particolare Platone, Filone di Alessandria, Plotino e Ario), e infine il consolidamento della posizione definitiva della Chiesa in materia al Concilio di Nicea (con Atanasio, Agostino e Tommaso d'Aquino, tra gli altri). Riteniamo che la struttura fondamentale di un Logos divino (*logos ut verbum*) e di un mondo creato con una sua intelligibilità (*logos ut ratio*) è già presente nel pensiero filosofico greco. Tuttavia, l'insegnamento di Nicea è fondamentale per la comprensione del rapporto tra il Logos creatore e il logos creato. Traiamo infine alcune conclusioni sulla natura del rapporto tra *logos ut ratio* e *logos ut verbum*.

PAROLE CHIAVE: *Logos*, Scienza, Creazione, Teologia, Concilio di Nicea, Giuseppe Tanzella-Nitti.

SUMMARY: I. *The Biblical Roots of the Doctrine of Creation Through and for the Word*. 1. Creation Through the Word in John's Gospel. 2. Creation Through and for Christ in Paul. II. *The Logic of Creation and the Divine Logos in Greek Philosophy and Christian Theologians: the Theological History of Nicaea*. 1. Plato. 2. Philo of Alexandria. 3. Plotinus. 4. Arius of Alexandria. 5. Nicaea and Athanasius. 6. Augustine, Aquinas and Other Theologians. III. *Christ and Creation: the Contrast Between Greek and Christian Mind-Forms*. IV. *Creation, the Logos, Science and Revelation*.

The world around is marked by many features and elements we ask about: its unity, truth, goodness, intelligibility, order, diversity and harmony. We observe its laws, its balance and justice, its nature and essence. We speak of its beauty, purpose, fulness, life, dynamic permanence, fixity and flexibility, solidity, capacity to self-regulate. We recognize the solidarity of all beings, their consistency and connectedness, the hierarchy and dependence between them. And so on. In general terms, this is what we would call the *logos* of the created world, its proper meaning, its logic, its intelligibility, its rationality. More specifically it may be designated as the *logos ut ratio*.

Yet the question arises: where does this reality and rationality derive from in the first place? Where do all these properties and characteristics have their origin? Perhaps they do not have any origin, springing forth from the universe itself. Perhaps the intelligibility and logic, the *logos ut ratio* of the universe, are the unforeseen result of blind evolution from chaos to order.

Or would it be more correct to say that the *logos* of the physical universe comes from outside itself, as a personal word, as a *logos ut verbum*, which confers intelligibility and rationality on the universe?¹ And

¹ The distinction between *logos ut ratio* and *logos ut verbum* may be found in many works of G. Tanzella-Nitti, especially G. TANZELLA-NITTI, *Jesus Christ, Incarnation and Doctrine of Logos*, in *Interdisciplinary Encyclopedia of Religion and Science* (2008): <https://inters.org/jesus-christ-logos>; IDEM, *La dimensione personalista della verità e il sapere scientifico*, in V. POSSENTI (ed.), *Ragione e Verità*, Armando, Roma 2005, 101-121; IDEM, *Filosofia e Rivelazione. Attese della ragione, sorprese dell'annuncio cristiano*, San Paolo, Cinisello Balsamo 2008, 83-93; IDEM, *Teologia fondamentale in contesto scientifico*, Città Nuova, Roma 2015-2018, vol. 1: *La Teologia fondamentale e la sua dimensione di Apologia*, 100-103; vol. 2: *La credibilità del cristianesimo*, 619-23; and especially vol. 3: *Religione e Rivelazione*, 153-62. See also O. JUURIKALA, *Discovering Creation as Personal Presence: From Logos ut Ratio to Logos ut Verbum*, in *From Logos to Person: 5th Interdisciplinary Conference at The Polis Institute, Jerusalem*, October, 2021.

this could be understood in two possible ways. Firstly, as the fruit of human effort: of work and human activity, as Marx might say, or from the active and unifying synthesis of sense data by means of immanent intellectual categories, as Kant would hold. Put another way: perhaps the *logos ut verbum* of the universe, its logic, expressivity, intelligibility, the light it contains, belongs to humans, who to their best knowledge are the only creatures capable of conferring intelligibility on things.² Secondly, however, given the metaphysical contingency of the created world, perhaps it would be more correct to say that the *logos ut verbum* refers to some kind of personal presence *outside* the universe. Perhaps a *transcendent, divine Word* that communicates with the universe above and beyond the material and the anthropological? This would account for the *logos ut verbum* “as Someone who is both before nature and before man, and thus as distinct from both. In that way, once we accept that the real physical world is presented with a *givenness* that science does not create but rather receives, the passage from a *logos ut ratio* to a *logos ut verbum* can be clarified in terms of *recognizing the given as gift*.”³ The givenness of the created world that science encounters and recognizes, reflects the divine gift of creation.

In fact, the Christian creed holds unequivocally that all things were created by God through the eternal Word/Son, Jesus Christ.⁴ In the power of the Holy Spirit God’s ‘logic’ was implanted on the created world. This logic therefore reflects the mind of God, the Word of God. And this is what the human mind encounters when it comes into cognitive contact with the universe. Thus we may say that to know the universe is, to some degree, to discover the mind of God, the word of God. As we saw above the one term *logos* may be applied to two connected realities: the divine Word present in God and the created word present in the world. There is a likeness, a parallel between them, a participation

² In other words, are we humans fundamentally *passive* with respect to knowledge, or rather *active*. On different epistemological positions, cfr. my work *Witnessing, Truth and the Dynamics of Christian Evangelization*, Bloomsbury, London 2025, chapter 1.

³ G. TANZELLA-NITTI, *Teologia fondamentale in contesto scientifico*, vol. 3, 160.

⁴ DH 150. On the notion of the world being created by means of the *Logos*, or Word, cfr. P. O’CALLAGHAN, *God’s Gift of the Universe. An Introduction to Creation Theology*, Catholic University of America Press, Washington 2022.

of one in the other. But they are not coincident. In fact the difference between them is great, as is that between Creator and creature.⁵

It is interesting to note, however, that the same fundamental structure of a divine *Logos* (*logos ut verbum*) and a created world with its own intelligibility (*logos ut ratio*) is also present in Greek philosophical thought. In fact, Christian reflection on the divine *Logos* developed to an important degree on the basis of the teachings of Plato, Aristotle, the Stoics and the Neo-Platonists. Nonetheless, the difference between the two versions—the Greek and the Christian—is profound, as was confirmed at the fourth-century Council of Nicaea which taught, against Arius, some 1700 years ago, that the *Logos*, made incarnate in Jesus Christ our Savior, is divine in the fullest sense of the word, is ‘consubstantial’ with the Father, and not subordinate to the Godhead, as Greek philosophers held. The teaching of Nicaea, as we shall see, is critical in our understanding of the relationship between the creating *Logos* and the created *logos*.

In the coming pages we shall examine the Biblical roots of the doctrine of divine creation through the Word, then the respective positions of Greek philosophers and Christian authors (in particular Plato, Philo of Alexandria, Plotinus and Arius), and finally the consolidation of the Church’s definitive position on the matter (with Athanasius, Augustine and Thomas Aquinas, among others). At the end of this reflection we shall attempt to draw some conclusions on the nature of the relationship between *logos ut ratio* and *logos ut verbum*.

I. THE BIBLICAL ROOTS OF THE DOCTRINE OF CREATION THROUGH AND FOR THE WORD

The doctrine of creation is to be found throughout the whole of Scripture. Genesis is of particular importance, as are the prophetic and wisdom writings.⁶ The New Testament speaks little about creation, and the reason for this is simple: the doctrine is taken for granted by the hagiographers.⁷

⁵ On the relationship between the transcendence of God and his immanence within creation, cfr. O'CALLAGHAN, *God's Gift of the Universe*, 157-62.

⁶ Cfr. *ibidem*, 39-74. Cfr. also M.V. FABBRI, M.Á. TÁBET (eds.), *Creazione e salvezza nella Bibbia*, Edusc, Roma 2009.

⁷ Cfr. O'CALLAGHAN, *God's Gift of the Universe*, 75-95.

In fact, many New Testament texts dealing with creation are to be found in the context of praise, proclamation of faith in the resurrection, of trust in God the Savior, and so on. Creation is never separate from the other works of God. Rather it is the presupposition of the latter, and even though creation has a relevance all of its own, it is not correct to speak of a solution of continuity between divine action “at the beginning” and the rest of God’s action in benefit of humanity.⁸

The novelty introduced by the New Testament involves principally the presence and action of Christ, God’s own Word made flesh in the Spirit. This may be seen especially in the teachings of John and Paul.

1. Creation Through the Word in John’s Gospel

Firstly we shall examine the doctrine of creation through the Word/Son in John’s Gospel. John’s theology of creation is situated principally in the prologue of his Gospel (1:1-18), and is based on two motifs with deep roots in the Old Testament: the power of the word and the personification of Wisdom.⁹

In effect, Scripture on repeated occasions tells us that God creates *through the word*. The “word” in Scripture is not a simple means by which an abstract idea is communicated; it is the sign and powerful expression of the presence and activity of God (Gn 1:6, 9, 11, 14, 20, 24, 26, 28, 29). Isaiah presents the word as *the vehicle of divine power* (Is 55:10). By means of the word God *called* Israel and at the same time *constituted* it as his people. Thus, creation is a product of the divine word. “Let all your creatures serve you, for *you spoke, and they were made*. You sent forth your Spirit, and it formed them; there is none that can resist your voice” (Jud 16:14). “My hand laid the foundation of the earth, and my right hand spread out the heavens; when I call to them, they stand forth together” (Is 48:13). “Let all the earth fear the Lord, let all the inhabitants of the world stand in awe of him! For he spoke, and it came to be; he commanded, and it stood forth” (Ps 32:8). The notion of word coming from the “mouth” of God fits well with the revealed doctrine of creation, for God when he creates does not merely give “instructions” to a previously

⁸ L. LADARIA, *Antropologia teologica*, Piemme, Casale Monferrato 1982, 20.

⁹ Cfr. A. BOTTINO, *Logos, Sapienza, Creazione*, in FABBRI, TÁBET (eds.), *Creazione e salvezza*, 377-86.

existing messenger or worker who goes on to construct the universe out of previously existing matter (which is what the Greek explanation of the Demiurge entails), but rather he carries it out himself, directly, personally, with his own power, without intermediaries of any kind.

Not unrelated to creation through the word is *creation through Wisdom*.¹⁰ We can sum up this teaching as follows. First, creation takes place through wisdom (Ps 8; Prv 8:27, 29-31), which penetrates the whole of reality, complete and entire (Wis 7:22-30). Then, Wisdom is superior to the created world (Bar 3:29-31), yet, though eternal, is distinct from God and at the same time made by him (Sir 1:1, 4, 6-8; 24:8-9). Besides, Scripture speaks of a deep and powerful *mutual* relationship between God and Wisdom (Bar 3:31; Jb 28:23-27). Johann Auer describes the passage between Old and New Testaments in respect of creation as follows: "In the place of the created wisdom of the Old Testament appears the eternal Son of the eternal Father, as principle, center and end of the history of salvation."¹¹

The similarities of Wisdom with the Word through whom all things were made (John's prologue), and with the Christ through whom, for whom, and in whom the world was created (Paul), are quite obvious. Wisdom, though used in the feminine in the Old Testament (*chokmah* in Hebrew, *sophia* in Greek) and in general usage,¹² becomes fully personified¹³ in the New. Indeed it becomes a Messianic title. Christ identifies himself with Wisdom (Mt 23:34; Lk 11:49-50).¹⁴ Interestingly, Church Fathers hesitated between attributing the term to Christ or to the Holy

¹⁰ On Wisdom in Scripture, cfr. M. SILVA (ed.), *New International Dictionary of New Testament Theology and Exegesis*, 5 vols., 2 ed., Zondervan, Grand Rapids 2014, (abbrev. NIDNTTE), 4:330-40, s.v. σοφία.

¹¹ J. AUER, *Die Welt - Gottes Schöpfung*, 2nd ed., F. Pustet, Regensburg 1983, 38.

¹² Cfr. E.-B. ALLO, *Sagesse et Pneuma dans la première épître aux Corinthiens*, «Revue Biblique» 43 (1934) 321-46; G. VON RAD, *Weisheit in Israel*, Neukirchen Kreis Moers, Neukirchen 1970; L. BOUYER, *Sophia, ou, le monde en Dieu*, Cerf, Paris 1994; J. TRUBLET (ed.), *La sagesse biblique. De l'Ancien au Nouveau Testament*, Cerf, Paris 1995; M. CIMOSA (ed.), *La sapienza nella Bibbia*, Borla, Roma 2013.

¹³ Cfr. A.M. SINNOTT, *The Personification of Wisdom*, Ashgate, Aldershot 2005.

¹⁴ Cfr. A. FEUILLET, Y. CONGAR, *Le Christ sagesse de Dieu d'après les épîtres pauliniennes*, Librairie V. Lecoffre J. Gabalda & C.ie, Paris 1966; S. KIM, *The Origin of Paul's Gospel*, 3rd ed., J.C.B. Mohr, Tübingen 1985, 173-339.

Spirit. But with time the former reading prevailed.¹⁵ Christ is the eternal Wisdom of the Father. This doctrine finds its full expression in the prologue of John's gospel.

The most relevant text of John's prologue (Jn 1:1-18) reads as follows:¹⁶

In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God; all things were made through him, and without him was not anything made that was made. In him was life, and the life was the light of men. The light shines in the darkness, and the darkness has not overcome it (Jn 1-5).

Edwin C. Hoskyns makes the following incisive observation on the text: "That Jesus once spoke is more fundamental for the understanding of the *Logos* than is the history of Greek philosophy, or the story of the westward progress of oriental mysticism, more fundamental even than the first chapter of Genesis or the eighth chapter of Proverbs."¹⁷

The teaching of John's prologue may be presented synthetically in the following five stages: (1) God and the Word are one and the same (vv. 1, 12, 14, 18), although (2) a distinction may be posited between the Father and the Son as persons (vv. 1, 18); (3) but the Word is particularly present to creation, for "all things were made through him" (v. 3) and "in him was life and the life was the light of men" (v. 4), the play of words between "life" and "light" offering a key insight into the kind of

¹⁵ Theophilus (*Ad Autolyicum*, II.15) and Irenaeus (*Adv. Haer.*, IV, 20:1-3) both apply the term "Wisdom" to the Holy Spirit, whereas Augustine (*De Trinitate* VII, 3:5) and Thomas Aquinas (*STI*, q. 38, a. 8; III, q. 3, a. 8) identify it with the Son.

¹⁶ Cfr. M.-É. BOISMARD, *Le prologue de saint Jean*, Cerf, Paris 1953; A. FEUILLET, *Le prologue du quatrième Évangile: étude de théologie johannique*, Desclée de Brouwer, Paris 1968; G.R. BEASLEY-MURRAY, *John*, WBC 36, Word Books, Waco 1987, 1-15; E.L. MILLER, *Salvation-History in the Prologue of John: The Significance of John 1:3-4*, Brill, Leiden 1989; M. ENDO, *Creation and Christology: A Study on the Johannine Prologue in the Light of Early Jewish Creation Accounts*, J.C.B. Mohr, Tübingen 2002; D.J. MACLEOD, *The Creation of the Universe by the Word*, «Bibliotheca Sacra» 160 (2003) 187-201; R. FABRIS, *Creazione nel Logos e nascita da Dio in Giovanni*, in FABRIS, TABET (eds.), *Creazione e salvezza*, 213-25; P. BORGES, *The Gospel of John: More Light from Philo, Paul and Archaeology: The Scriptures, Tradition, Exposition, Settings, Meaning*, Brill, Leiden 2014; J.G. VAN DER WATT, R.A. CULPEPPER, U. SCHNELLE (eds.), *The Prologue of the Gospel of John: Its Literary, Theological, and Philosophical Contexts*, Mohr Siebeck, Tübingen 2016.

¹⁷ E.C. HOSKYNs, *The Fourth Gospel*, 2nd ed., Faber and Faber, London 1948, 137.

presence the Word enjoys among creatures; (4) the Word, coming into the world created through him is not recognized by the world (vv. 10-11), and especially by his own people, on account of the darkness and gloom introduced by sin that kills life and quenches light; and (5) for this reason the Word, life and light, became flesh to save the world, reveal Wisdom, and bring creation back to the Father (vv. 1, 4, 9, 14, 17). We can see that creation is totally tied up with salvation.

As regards John's teaching on God's creation in the prologue, the following six observations may be made in respect of the *Logos*, or Word.

First, that creation is an entirely divine work; creatures have no involvement whatsoever in bringing it into existence. The Word is not a mere intermediate instrument, a Demiurge, a first creature, a created creator. Rather he is with God and is God.

Second, God created the world through the Word. The expression applied by Paul to Christ, *dia autou* ("through him") is employed here. Thus the Word is presented as the "mediator" of creation. John uses terminology that is frequent in Greek philosophy, that of Plato and Philo especially. This is of help in understanding the text, although the prologue goes beyond the positions of the philosophers on many fronts. Besides, the prologue evokes Genesis,¹⁸ as well as Proverbs and Wisdom. This helps us to situate and understand the text, which is ultimately meant to present the person and saving work of Jesus Christ, the Son of God, eternal Word of God made man.

In the third place, since the Word is *one with God*, as we have just seen, then his mediating role cannot be merely passive or passing; the Word is not a mere created, temporary intermediary. It is not as if the Word offers the Father a series of possible blueprints among which he could then choose and follow in constructing the universe. In effect, the mediation of the Word is not accidental, occasional, or temporary, coming to a close as soon as the work of creation is over. Rather, the Word's mediation is as continuous, profound, and direct as it is divine. Perhaps for this reason the Book of Revelation—closely bound up

¹⁸ Cfr. BORGES, *The Gospel of John*; G. SCHWARZ, *Gen 1,1-2,2a und Joh 1.1a.3a. Ein Vergleich*, «Zeitschrift für die neutestamentliche Wissenschaft und die Kunde des Urchristentums» 73 (1982) 136-7.

with the Johannine corpus—speaks of Christ as the origin or principle (*archē*) of creation (Rv 3:14),¹⁹ as “the Alpha and the Omega, the beginning and the end” (Rv 21:6; 22:13). In brief terms, we may say that the creative mediation of the Word is active, dynamic and enduring, not merely passive, static and accomplished once and for all, because creation takes place not only through the Word but also in the Word.

Fourth, created entities receive existence, permanence in being, intelligibility, and vitality from the inexhaustible existence, permanence, intelligibility, and vitality of the Word, that is, they *receive life* from the one who has received it from the Father. Indeed, the Word’s mediation may be expressed as a kind of continuous vivifying presence within the world. In the text of the prologue there is a possible variant in the translation of verses 3-4: “All things were made through him and without him nothing was made. *All things made in him were life*, and life was the light of men.”²⁰ The variant brings out an important aspect of role the Word plays in creating the world, which is more than that of an architect or a teacher, because it is not external but interior. The Word is *the living source of all life*, a doctrine confirmed later on in John’s gospel (Jn 5:21, 26). The God of the Old Testament of course is the God of life, the one who has life in fulness and communicates it to us with almighty power.²¹ Pagan gods or intermediate beings, on the contrary, are primarily receptive to life and thus incapable of natively imparting it; unable to take care of themselves, they are the work of human hands, standing in need of human support, with no vital power of their own. Yet the life Christ has received from the Father he divinely imparts it to creatures: he is the only Lord.

Fifth, other Johannine texts speak of the world being creation *for the Word*. For example: “Worthy are you, our Lord and God, to receive glory and honor and power, for you created all things, and by your will

¹⁹ Cfr. C.F. BURNEY, *Christ as the APXH of Creation*, «Journal of Theological Studies» 17 (1926) 160-77; C. DOGLIO, *La creazione ‘nuova’ secondo l’Apocalisse*, in FABBRI, TÁBET (eds.), *Creazione e salvezza*, 227-67.

²⁰ On the correct translation of the text, cfr. I. DE LA POTTERIE, *De interpunctione et interpretatione Jo 1,3-4*, «Verbum Caro» 9 (1955) 193-208, and FEUILLET, *Le prologue*, 37-64.

²¹ F. MUSSNER, *Žoë: Die Anschauung vom «Leben» im vierten Evangelium unter Berücksichtigung der Johannesbriefe. Ein Beitrag zur biblischen Theologie*, K. Zink, Munich 1952; F. ASENSIO, *Trayectoria teológica de la vida en el AT y su proyección en el Nuevo*, Csic, Madrid 1968.

they existed and were created” (Rv 4:11). Besides, Christ is described as “the Alpha and *the Omega*, the beginning [*archē*] and the end [*tēlos*]” (Rv 21:6). The hymn of praise that constitutes the high-point of the Book of Revelation presents Christ as Lord and goal of creation. So creation may be said to take place not only through the Word, and in the Word, but also for the Word, the ultimate source of life at every stage of the existence of the universe.²²

The sixth observation is a relevant one. Sin obscures human awareness of the living presence of the Word in creation. “He was in the world, and the world was made through him, yet the world knew him not. He came to his own home, and his own people received him not” (Jn 1:10-11). This text resonates openly with Wisdom 13:1-9 and Romans 1:18-22, which speak of the “obviousness” of God’s presence in creation and the blindness of humans induced by sin. Through the incarnation God wanted to bring the world back to himself by vivifying our awareness of the Word already present among and within creatures. Thus through the faith involved in conversion, *life*, the life given to the world by the Word, becomes *light*. Life becomes anew the light of men (v. 4), overcoming the darkness of sin (v. 6).

The divine logic of the incarnation (v. 14) is presented in two ways. On the one hand, it shows that God’s self-giving and revelation in Christ has become extraordinarily direct and accessible to humanity. The beauty and light and approachability of Jesus’ words and life are undeniable. On the other hand, the incarnation of Christ the Word is weak on account of the weakness of mortal flesh; this provides perhaps the true key to understanding the reality of divine Wisdom, God’s own Word: the word of God and his wisdom speak with greater power through the death and apparent weakness of Christ, for they do not attempt to impose but rather to convince. The deepest knowledge of the interior reality of the created world, of its total dependence on God, of its “own” nothingness and inner orientation toward a transcendent end, derives from and is revealed in Christ. And this is Christ on the cross, the Word through whom, in whom, and for whom the world was made. Christ, dying on the cross, renounced, in order to do

²² I.A. McFARLAND, *From Nothing: a Theology of Creation*, Westminster John Knox Press, Louisville Kentucky 2014, 34-42.

the will of his Father, the greatest and most noble created good, human life itself, in that way showing not only the fidelity and intensity of his love for humanity (Jn 15:13), but also the inner reality of the created world.

2. *Creation Through and for Christ in Paul*

We shall now examine the doctrine of creation in, through, and for Christ in the Pauline corpus. On the one hand, there is a clear continuity between Old Testament teaching on creation and that of Paul in the New: God has created all things, without exception, and is therefore the Lord of the universe.²³ On the other hand Paul develops a theology of creation in terms of the relationship between Christ and creation expressed by a series of functional creational prepositions which describe the way in which God's creative action relates respectively to the Father and to Christ. They are as follows: *ek* (from), *dia* (through), *eis* (for), although another two are also to be found: *epi* (above) and *en* (in).

Three Pauline texts are of particular interest here. First, Rom 11:36, which serves as a climax to a section of the letter to the Romans dealing with salvation and the Jews. Paul encourages believers to show appreciation for the gifts and hidden counsels of God and concludes: "For from [*ek*] him and through [*dia*] him and to/for [*eis*] him are all things. To him be glory for ever. Amen" (Rom 11:36). The subject of creation is God. This means that the created world comes entirely from him and is always directed to his glory. God is "the source, medium and goal of everything, the beginning, middle, and end of all that is."²⁴

Second, in Eph 4:4-6 we read: "There is one body and one Spirit, just as you were called to the one hope that belongs to your call, one Lord, one faith, one baptism, one God and Father of us all, who is

²³ Cfr. G. BAUMBACH, *Die Schöpfung in der Theologie des Paulus*, «Kairos» 21 (1979) 196-205; J.D.G. DUNN, *Romans 1-8*, Word Books, Waco 1988 («Word Biblical Commentary», 38A); U. MELL, *Neue Schöpfung: eine traditionsgeschichtliche und exegetische Studie zu einem soteriologischen Grundsatz paulinischer Theologie*, W. de Gruyter, Berlin 1989; U. VANNI, *La creazione in Paolo. Una prospettiva di teologia biblica*, «Recensioni di Teologia» 36 (1995) 285-325; R. PENNA, *L'idea di creazione in Paolo e nel paolinismo: il ruolo di Cristo per un nuovo concetto di cosmo, di uomo e di chiesa*, in FABBRI, TÁBET (eds.), *Creazione e salvezza*, 191-212.

²⁴ DUNN, *Romans*, 704.

above [*epi*] all and through [*dia*] all and in [*en*] all.” Again God, the one and only God, is seen to be the all-encompassing, transcendent creator, present in all things.²⁵

This doctrine is confirmed in a third text, 1 Tim 6:13-15, in which we read that “God [...] gives life to all things [...] the blessed and only Sovereign, the King of kings and Lord of lords.” The text also mentions Christ, not in the context of creation, but as God’s witness before Pontius Pilate (6:13). In these texts it may be said that the creational prepositions, “from him,” “through him,” and “for him” are applied consistently to God the eternal Father. Things change clearly in two more substantial texts in the Pauline corpus, 1 Cor 8:5-6 and Col 1:15-20.

First, the letter to the Corinthians. Speaking of the uniqueness of God,²⁶ Paul observes: “For although there may be so-called gods in heaven or on earth—as indeed there are many ‘gods’ and many ‘lords’—yet for us there is one God, the Father, from whom [*ek hou*] are all things and for whom [*eis autou*] we exist, and one Lord, Jesus Christ, through whom [*di’ hou*] are all things and through whom [*di’ autou*] we are” (1 Cor 8:5-6).²⁷ The doctrine of Romans, Ephesians, and 1 Timothy is maintained: the world comes into being by and from God and is directed to him. But the *mediation* of creation and salvation (*di’ hou*) is now attributed to Christ. This is a novelty not present elsewhere. 1 Tim speaks of Christ’s mediation in relation to salvation (especially 1 Tm 2:5), but not to creation. Yet in 1 Cor creation is included in Christ’s work. By implication Christ, in sharing the creational prepositions with God, is placed on the same plane as the Father, precisely because the “gods” in the strict sense simply do not exist, for there are no intermediate beings, but only one,

²⁵ Some authors understand “all” in the masculine and therefore apply the expression to the Church (all humans), but the context here as well as other Pauline texts (1 Cor 8:6 and 15:28; Rom 11:36) indicate that “all” should be taken in the neutral sense, referred therefore to the created world (all beings). Cfr. A.T. LINCOLN, *Ephesians*, Word Books, Waco 1990, («Word Biblical Commentary», 42), 240.

²⁶ Conzelmann puts it as follows: “The gods become gods by being believed in, and faith in the one God and the one Lord creates freedom no longer to recognize these powers,” (H. CONZELMANN, *1 Corinthians: A Commentary on the First Epistle to the Corinthians*, Fortress Press, Philadelphia 1975, 145).

²⁷ J.A. FITZMYER, *First Corinthians, Anchor Yale Bible*, Yale University Press, New Haven 2008, 341-44.

single, supreme divinity. And here Christ is presented as “the preexistent mediator of salvation.”²⁸ The Johannine term *Logos* is not used, but the idea is the same. This position of course finds its roots in the Old Testament continuity between creation and salvation: the one who saves is the one who created us; God’s work of creation finds its ongoing complement in salvation, one and the other taking place through Christ.

Second, the most extensive Pauline text on Christ and creation is to be found in the first chapter of the letter to the Colossians (1:15-20). It reads as follows:

He [Christ] is the image of the invisible God, the first-born of all creation; for in him [*en autō*] all things were created, in heaven and on earth, visible and invisible, whether thrones or dominions or principalities or powers—all things were created through him [*di’ autou*] and for him [*eis auton*]. He is before all things, and in him [*en autō*] all things hold together [*sumestēken*]. He is the head of the body, the Church; he is the beginning, the first-born from the dead, that in everything he might be pre-eminent. For in him [*en autō*] all the fulness of God was pleased to dwell, and through him [*di’ autou*] to reconcile to himself all things, whether on earth or in heaven, making peace by the blood of his cross.

Some observations on these impressive liturgical text are in order.²⁹ It is clear that the subject of the text is Christ.³⁰ Perhaps the most important theological novelty in Colossians lies in the fact that a double role is attributed to Christ that in earlier texts was attributed to the Father, “all things were created *through him and for him*” (v. 16). Besides, this is confirmed in verse 17: “in him all things hold together” which connects

²⁸ A. LINDEMANN, *Der Erste Korintherbrief*, Mohr Siebeck, Tübingen 2000, 193; also G. DE VIRGILIO, “Πᾶν κτίσμα θεοῦ καλόν” (1Tm 4,4). *La positività della creazione e la sua dimensione salvifica nelle Lettere Pastorali*, in FABBRI, TÁBET (eds.), *Creazione e salvezza*, 361-76.

²⁹ FEUILLET-CONGAR, *Le Christ sagesse de Dieu*; P. BENOIT, *L’hymne christologie de Col 1, 15-20. Jugement critique sur l’état des recherches*, in *Christianity, Judaism, and Other Greco-Roman Cults: Studies for Morton Smith at Sixty*, edited by J. Neusner, Brill, Leiden 1975, 226-63; J.-N. ALETTI, *Colossiens 1, 15-20: genre et exégèse du texte: fonction de la thématique sapientielle*, Biblical Institute Press, Rome 1981; L.R. HELYER, *Arius Revisited: the Firstborn over all Creation (Col 1:15)*, «Journal of the Evangelical Theological Society» 31/1 (1988) 59-67; C. BASEVI, *Col 1, 15-20. Las posibles fuentes del ‘himno’ cristológico y su importancia para la interpretación*, «Scripta Theologica» 30 (1998) 779-802; S.M. McDONOUGH, *Christ as Creator: Origins of a New Testament Doctrine*, Oxford University Press, Oxford 2009, 172-191.

³⁰ LADARIA, *Antropologia teologica*, 23; A. GRILLMEIER, *Christ in the Christian Tradition, vol. 1: from the Apostolic Age to Chalcedon*, John Knox Press, Atlanta 1975, 144.

directly with Hebrews 1:3: “He [Christ] reflects the glory of God and bears the very stamp of his nature, upholding [*pherōn*] the universe by his word of power.” As a result, in the words of O’Brien, “from the highest to the lowest, all creatures alike are subject to Christ.”³¹ André Feuillet sums up Col 1:15-20 by saying that Christ “as divine Wisdom, is the mirror in which God has contemplated the plan of the cosmos.”³²

The text also justifies the “transfer” of the creational prepositions from the Father to Christ. For Christ is “the image of the invisible God” (Col 1:15),³³ a way of speaking that finds deep roots in wisdom literature, especially in Prov (8:22, 30)³⁴ and in Wis (7:25). In fact, being the “first-born of all creation” does not make Christ a mere creature, but rather the eternal Son in whom and through whom and for whom creation takes place, because in him God’s image is perfect. Christ “reflects the glory of God and bears the very stamp [*charaktēr*] of his nature” (Heb 1:3). Thus he is the creator, along with the Father, of all things, heavenly and earthly, including the angels: “all things were created, in heaven and on earth, visible and invisible, whether thrones or dominions or principalities or powers—all things were created through him and for him” (v. 16).

In comparison with the prologue of the Gospel of John, which expresses the presence and mediating role of Christ in creation in the past tense, as a former event, Paul insists besides on the present action of Christ: “in him all things hold together.” This suggests that Christ constantly conserves all things in their very existence, cohesion, and harmony (the term used is *sunestēken*, “to bring together”).³⁵ Christ may not

³¹ P.T. O'BRIEN, *Colossians, Philemon*, Word Books, Waco 1982, («Word Biblical Commentary», 44), 47.

³² FEUILLET-CONGAR, *Le Christ Sagesse*, 365.

³³ On the interpretation of “image of the invisible God” in Col 1:15, cfr. J.R. STRAWBRIDGE, *The Image and Unity of God: the Role of Colossians 1 in Theological Controversy*, in *The Bible and Early Trinitarian Theology*, edited by C.A. Beeley, M. Weedman, The Catholic University of America Press, Washington 2018, 172-90.

³⁴ Cfr. R.B.Y. SCOTT, *Wisdom in Creation: the Ἄμὼν of Proverbs viii.30*, «Vetus Testamentum» 10 (1960), 213-223.

³⁵ W. BAUER, F.W. DANKER, W.F. ARNDT, F.W. GINGRICH (eds.), *A Greek-English Lexicon of the New Testament and other Early Christian Literature*, 3rd ed., University of Chicago Press, Chicago-London 2000, (abbrev. BDAG), 972, s.v. συνιστήμι.

simply be considered as a static exemplar of what the world always was and always will be.

Another important novelty of the Colossians text lies in the affirmation that the world was created *for* Christ: 1 Cor 8:6 spoke of *God* “for whom we exist.” And O’Brien observes: “The teaching that Christ is the ultimate goal of all creation [in Colossians] has no parallel in the Jewish Wisdom literature or indeed any other Jewish source. The very one who was crucified as a common criminal, that is Jesus Christ, is the very person to whom the whole of creation, and therefore history as well, moves.”³⁶ To this may be added the observation of McDonough who points out that “a messianic reading of the passage fits well with frequent Jewish assertions that the world was created ‘for the sake of’ Moses or whomever.”³⁷ The notion of finality is very much present in the Scriptural account of creation. All in all, we may say that Christ is, to use the technical term, the *final cause* of the entire created universe (cfr. also Eph 1:9).

But what does this involve theologically? It means that just as creation has a beginning, it will also have an end, a fulfillment, an ultimate purpose, and on the same terms. Just as the Son, the perfect image, the Word, was present, actively present, at the beginning, and present throughout history, he will also be so at the end, when God through him will be “all in all things” (1 Cor 15:28). In Christ, God’s Word/Wisdom has taken on the dominion, the control, the reins, and the meaning of the entire universe, of the whole of history, in all its height and depth, in its intricate dynamism and dramatic realism. Christ, the beginning of all things, the eschatological judge of history in its final fulfillment, was present at the beginning of creation, is now and ever shall be present. Present *actively*, as creator, not as a mere spectator. Christ is never lost, or relativized, or emptied, or surpassed “on the way” as it were, whether by history, by reason, by progress, by technology, by humans. He is,

³⁶ P.T. O’BRIEN, *Colossians*, in *New Bible Commentary*, edited by D. Guthrie, D.A. Carson, R.T. France, J.A. Moteyer, G.J. Wenham, 4th ed., InterVarsity, Leicester 1994, 1259-75, 1265.

³⁷ Cfr. McDONOUGH, *Christ as Creator: Origins of a New Testament Doctrine*, 186. This author refers to *b. Sanh.* 98b, where the world is variously said to be created for David, for Moses, for the Messiah.

always was, and always will be the Lord of history and judge of the universe. Everything that exists tends toward him, whether it is aware or not of the fact.

Giacomo Biffi says of the Christ: "Everything derives its nature from him, the exemplar principle; everything derives its very existence from him, the efficient cause. Everything is a fragment of immeasurable value gathered together in him; every single thing receives from him alone its proper meaning. We are all fruit of his act of love, which mysteriously humanizes the ineffable act of divine love that is at the source of the existence of every creature."³⁸

II. THE LOGIC OF CREATION AND THE DIVINE LOGOS IN GREEK PHILOSOPHY AND CHRISTIAN THEOLOGAINS: THE THEOLOGICAL HISTORY OF NICAEEA

In the order, unity, goodness, beauty, and harmony of nature, in its "logic" as it were, Christian authors have always detected traces of God's action in and through the eternal Word, Jesus Christ, through whom all things were made. *Semen omnium Christus*, said Ambrose: "Christ is the seed of all things."³⁹ Biblical and patristic understandings of the "logic" of the universe developed principally in an intentional dialogue between Jewish and Christian believers on the one hand and Greek philosophers on the other. Content-wise, the Christian end-product differed clearly from Platonism, Stoicism, and Aristotelianism, as the Council of Nicaea taught in 325 A.D. Yet the language and philosophical concepts of Greek and Christian thought had a great deal in common, especially in respect of their respective understanding of the divine *Logos*. Besides, the concern of philosophers was not substantially different from that of Christian theologians: to understand what God did in creating the world, why he did it, and the kind of mediations he employed in doing so.

In the following pages we shall consider the position of four philosophers who dealt with the issue of the creation of the world through the mediation of an intermediary being (*Logos* or Demiurge): (1) Plato, (2) Philo of Alexandria, (3) Plotinus, and (4) Arius. Others could certainly

³⁸ G. BIFFI, *Approccio al cristocentrismo: note storiche per un tema eterno*, Jaca Book, Milano 1994, 80.

³⁹ AMBROSE, *In Ps.* 43, 39.

have been chosen, for example, Origen or Clement of Alexandria, but the four are sufficiently representative of the variety of positions present in the debate. Then we shall refer to (5) the teaching of Athanasius and the Council of Nicaea, as well as that of (6) Augustine and Thomas Aquinas.

1. *Plato*

Plato considers as true and real what is divine. And to be divine means above all to be immortal, that is, permanent, eternal, perfect and immaterial. And yet divinities are to be found everywhere throughout the whole world. “The world is full of gods,” he says.⁴⁰ The supreme divinity, which maintains all the rest in unity and provides the center point in the hierarchy of beings, is designated as the Good. In itself, however, the Good is unreachable and virtually unknown to all the other creatures, for it has no direct contact with the world, with mortals, with matter and the senses. The reason for this is simple: matter cannot enter into contact with the divinity, for spirit and matter are antithetical to one another. Hence a mediation between the two orders is provided, Plato says, by the so-called Demiurge. The term, from the Greek *dēmiourgos*, means “public worker.”⁴¹

The Platonic Demiurge divinity is unique, eternal, inalterable, invisible, intelligent, full of knowledge and power. In the *Tīmaeus* Plato explains that it shapes the world in two stages, first by contemplating the world of Forms,⁴² and then by organizing and constructing visible things on the basis of prime matter, that is, preexisting non-formed matter. The world produced by this process is called *kosmos*,⁴³ which literally means “order.”⁴⁴ Thus prime matter is the substrate of all beings, of

⁴⁰ PLATO, *Laws* 899b.

⁴¹ Cfr. NIDNTTE 1:682, s.v. Δημιουργός. The term is to be found only once in the New Testament (Heb 10:11), but is not referred to creation. Cfr. also K. MURAKAWA, *Demiurgos*, «Historia» 6 (1957) 385-415; A. DOUDA, *Platons Weltbaumeister*, «Altertum» 19 (1973) 147-56; E. LÉVY, *La dénomination de l'artisan chez Platon et Aristote*, «Ktēma» 16 (1991) 7-18.

⁴² Cfr. PLATO, *Tīmaeus* 29a.

⁴³ Cfr. BDAG 56:1-3, s.v. Κόσμος.

⁴⁴ Cfr. PLATO, *Tīmaeus* 30a.

every generation,⁴⁵ it is the receptacle of all forms,⁴⁶ the undifferentiated subject awaiting to be shaped and formed. Given its mediating role the Demiurge is often considered as a god and as provident for this world. Yet its role is limited, we have just said, in two ways: (1) by the Form, a kind of eternal and preexistent exemplar, which it must contemplate and imitate, and (2) by matter, both chaotic and stubborn, besides being preexistent. Thus the Demiurge may form matter, shape or fashion things material, but on no account does it *create* or give existence to things not previously existing. It is to be understood as a kind of second-god, intermediate and instrumental, inferior to the Good who produces and generates it and with which it acts in continuity. The reason for its existence is to make or fabricate the world. The fundamentals of the doctrine of the *Logos* are thus clearly laid out.

2. *Philo of Alexandria*

Philo, a Jew, contemporary of Jesus Christ, is of particular importance in understanding the Christian doctrine of creation.⁴⁷ He attempted to establish a synthesis between Old Testament revelation and the cosmological vision of Platonists and Stoics. Taking up the position of the latter, he offered an explanation overcoming an important lacuna in Plato's understanding of the Demiurge, especially in respect of the intrinsic intelligibility of created things. Besides, he held that the transcendent God of the Old Testament is truly the creator of the world, and that he created matter *ex nihilo*. "For God called the non-existent into being, order out of disorder, quality out of unqualified matter, similarities out of dissimilarity [... To create is] to introduce the non-existent into existence."⁴⁸

⁴⁵ Cfr. *ibidem*, 49a.

⁴⁶ Cfr. *ibidem*, 50c.

⁴⁷ On Philo, R. RADICE (ed.), *Platonismo e creazionismo in Filone di Alessandria*, Vita e Pensiero, Milano 1989; IDEM, *Filone di Alessandria*, in *Enciclopedia Filosofica*, Bompiani, Milano 2006, 4120-22; J. DANÉLOU, *Philo of Alexandria*, James Clark, Cambridge 2014; G. REALE, *Filone di Alessandria e la prima elaborazione filosofica della dottrina della creazione*, in 'Paradoxos politeia.' *Studi patristici in onore di Giuseppe Lazzati*, edited by R. Cantalamessa, L.F. Pizzolato, Vita e Pensiero, Milano 1979, 247-87.

⁴⁸ PHILO, *Spec. Leg.* 4, 187; IDEM, *De Opif. Mundi*, 31.

Philo uses the Greek term *ktizein* to designate God's action ("create," the standard translation of *bara'*), and not *poiein* (to "make") as Plato does. In effect, for Plato the intelligibility or "form" of things is not inherent in them but belongs to the divine realm. At best, for Plato, finite beings provide occasions with which the human mind contemplates the world of Forms; as we saw earlier on, knowledge involves remembering what was once seen or contemplated in the world of Forms. It does not involve abstracting inherent intelligible content from things, what Aristotle referred to when speaking about the *entelechia* present in beings, and the Stoics called the *logoi spermatikoi*, or seminal reasons. Philo however does hold that between the Platonic Demiurge (intelligibility on God's side as it were, the *logos theios*) and the intelligibility inherent in things (the *logos spermatikos*) there is an intermediate being, called the *Logos*, or Word. By means of the *Logos*, Philo says, God created the cosmos and continues his action in the world.

Philo compares God with an architect who, wanting to found a great city, "first thought the types and with them formed the intelligible cosmos to then produce the sensitive cosmos, using the former as a model."⁴⁹ On the basis of an analogy describing the construction of a building, he explains:

Passing on from these particular buildings, consider the greatest house or city, namely, this world, for you will find that *God* is the cause of it, by whom it was made. That the *materials* are the four elements, of which it is composed [earth, air, fire, water]; that the *instrument* is the word [*logos*] of God, by means of which it was made; and the object of the building you will find to be the display of the goodness of the Creator [*demiourgos*].⁵⁰

Philo identifies the *logos* with Wisdom or Reason. Drawing on the Old Testament, he likewise describes the *logos* as the Son, the Angel, the High Priest, the image, the model and idea of the world, its living law, its vital power, the bond between all the different elements it is made up of, and thus the instrument or mediator of creation. He expresses this mediating role in the following powerful words:

⁴⁹ IDEM, *De Opif. Mundi*, 19. "For Plato, the demiurge looks up towards Principles and Ideas, which measure/control his creative action. The God of Philo has nothing above him. The demiurge looks at intelligible world of Ideas, but this is ontologically inferior to God," (FABBRI, *Creatore e demiurgo*, in FABBRI, TÁBET (eds.), *Creazione e salvezza*, 149-57, 151).

⁵⁰ PHILO, *De cherubim* 12, 5-7.

The Father who created the universe has given to his archangelic and most ancient Word [*logos*] a pre-eminent gift, to stand on the confines of both, and to separate that which had been created from the Creator. And this same Word is continually a *suppliant* to the immortal God on behalf of the mortal race, which is exposed to affliction and misery; and is also the *ambassador*, sent by the Ruler of all, to the subject race. And the Word rejoices in the gift, and, exulting in it, announces it and boasts of it, saying, "And I stood in the midst, between the Lord and you" (Nm 16:48), *neither being uncreated as God, nor yet created as you, but being in the midst between these two extremities*, like a hostage, as it were, to both parties: a hostage to the Creator, as a pledge and security that the whole race would never fly off and revolt entirely, choosing disorder rather than order; and to the creature, to lead it to entertain a confident hope that the merciful God would not overlook his own work.⁵¹

It is commonly held that Philo made a direct contribution to the development of Christian theology in respect of the identity and creative role of the divine *Logos*, although not all authors hold this position.⁵² Zizioulas acutely observes: "Although Philo had tried to free God from creation, he had actually confined him to it. Philo made the world necessarily present to God, ever-present within him in the form of the *logoi*, the thoughts of God."⁵³ Yet the *Logos* of Philo is divine, but subordinate; in the words of Grillmeier, "in accepting gradations between God and the world into his Judaistic monotheism, Philo would feel less threatened than a Christian theologian who designated Christ (and the *Pneuma*) as God."⁵⁴

3. Plotinus

Plotinus, a third-century neo-Platonic philosopher, is another important figure in explaining the relationship between *Logos* and creation. Two terms mark his understanding of the world, its creation and dynamics:

⁵¹ IDEM, *Quis rerum divinarum heres sit* 205 (emphasis added).

⁵² Cfr. McDONOUGH, *Christ as Creator*, 135-49. Cfr. also FABBRI, *Creatore e demiurgo*, 149-57.

⁵³ J.D. ZIZIOULAS, *Creation and Salvation*, in D.H. KNIGHT (ed.), *Lectures in Christian Dogmatics*, T&T Clark, New York-London 2008, 83-119, 86.

⁵⁴ GRILLMEIER, *Christ in the Christian Tradition*, 1:224.

emanation (in Greek, *aporroia*),⁵⁵ and as a result, hierarchy (*hieros*).⁵⁶ The term “emanation” is used only once in the Old Testament (Wis 7:25), but is typical of Platonic thought. In Plotinus emanation refers to the production of one reality from another, and in this case the production of the world from the substance of the divine; this is Plotinus’s equivalent to creation,⁵⁷ what may be called integral emanation.⁵⁸ In real terms, emanation is a kind of halfway-house between generation and creation.⁵⁹ And the world that results from it is clearly hierarchical, connected, and subordinated. Plotinus’s emanationist hierarchy⁶⁰ is composed of five elements.

At the top of Plotinus’s hierarchy is the supreme divinity, the One. Below the One is the *Nous*, thought or Mind, which represents the intelligible world, and is like Plato’s Demiurge. The One without the *Nous* is unthinkable, says Plotinus significantly: “just suppress otherness and all you get will be indistinct unity and silence.”⁶¹ “The *Nous* is therefore the *Logos* of the One,”⁶² God’s intelligibility as it were. Below the *Nous*, in third place, is situated the *psyche*, the soul, equivalent to Plato’s world-soul, which serves as a connecting link between the higher world and the world of the senses, “a mediating reality, looking at once upwards and downwards.”⁶³ Below again is the *physis*, or nature, the soul of the material world into which the human soul has fallen. At the bottom of the hierarchy, in fifth place, is matter itself which is equivalent to nothingness

⁵⁵ I. RAMELLI, *Emanatismo*, in *Enciclopedia filosofica*, Bompiani, Milano 2006, 3315-18. In Plotinus a more precise term might be “procession” (*prōodos*). Cfr. J. TROUILLARD, *La procession plotinienne*, PUF, Paris 1955).

⁵⁶ Cfr. BDAG 470, s.v. ἱερός.

⁵⁷ F. RICKEN, *Emanation und Schöpfung*, «Theologie und Philosophie» 49 (1974) 483-86; L.P. GERSON, *Plotinus’s Metaphysics: Emanation or Creation?*, «Review of Metaphysics» 46 (1992) 559-74; IDEM, *Eternal Truth: Plotinus, Aquinas, and James Ross*, «Proceedings of the American Catholic Philosophical Association» 67 (1993) 143-50.

⁵⁸ J.-M. NARBONNE, *Plotinus and the Secrets of Ammonius*, «Hermathena» 157 (1994) 117-53.

⁵⁹ RAMELLI, *Emanatismo*, 3317.

⁶⁰ Cfr. G. SCHOLEM, *Major Trends in Jewish Mysticism*, Thames and Hudson, London 1955, vii, 256.

⁶¹ PLOTINUS, *Enneads*, V, 1:4.

⁶² G. FAGGIN, “Plotino,” in *Enciclopedia filosofica*, Bompiani, Milano 2006, 8701-12, 8704.

⁶³ C.E. GUNTON, *The Triune Creator: A Historical and Systematic Study*, Eerdmans, Grand Rapids 1998, 34.

(in Greek, *to me on*, relative nothingness when it is without form, just as light gets weaker and weaker the further it is removed from the source, until it simply disappears).⁶⁴ In the *Enneads* Plotinus says that “the entire intellectual order may be figured as a kind of light with the One in repose at its summit as its king.”⁶⁵

Colin Gunton notes the continuity between Plato and Plotinus: “What we have in Plotinus is the world view of the *Timaeus* almost entirely freed of the mythological background which still pervades that work.”⁶⁶ Some authors argue that Plotinus’s process of emanation—his equivalent to creation—takes place necessarily,⁶⁷ others that it is spontaneous.⁶⁸ Whatever the case, the production of the universe may not be looked upon as an act of the divine will in the Christian sense of the word, for the triad which structures reality—the One, the Mind, and the soul—is not equivalent to the Christian Trinity of persons which serves as an interpersonal locus for free divine action. In the words of Gunton:

The real contrast [between Plotinus and the Christian understanding of the world] is between the flowing forth of the lower from the higher, in which the material order is grudgingly given a small place, and the personal act of creation which affirms the whole of the world, matter and spirit alike. It is between creation as the result of the One’s concern with itself, and the triune God’s love of that which is not himself.⁶⁹

Perhaps we may say that the divinity for Plotinus’s emanation is conditioned, whereas for Christianity’s creation it is not.

Plotinus is important in his own right, as the maximum representative of the neo-Platonic philosophical movement. But he is of particular importance because his works, like those of Philo, were influential in the writings of Christian authors, especially Dionysius the Areopagite and Augustine, but also in Origen, Clement of Alexandria, and Arius, who set

⁶⁴ Cfr. J. OPSOMER, *Proclus vs Plotinus on Matter*, «Phronesis» 46 (2001) 154-88.

⁶⁵ PLOTINUS, *Enneads*, V, 2:2.

⁶⁶ GUNTON, *The Triune Creator*, 35.

⁶⁷ Cfr. F. COPLESTON, *History of Philosophy, vol. 1: Greece and Rome*, Doubleday, New York 1993, 467.

⁶⁸ Cfr. J.M. RIST, *Plotinus: The Road to Reality*, Cambridge University Press, Cambridge 1967, 72.

⁶⁹ GUNTON, *The Triune Creator*, 36.

the scene for Christology, Trinitarian and creation theology during much of the critical fourth century. Each one of them developed in different ways a theology of the *Logos* in its mediating role between God and the created world. Let us now examine one of them, Arius.

4. Arius of Alexandria

Arius, a fourth-century Alexandrian presbyter, is of particular importance in our understanding of the *Logos*.⁷⁰ On the basis of a series of important biblical texts, Arius took it that the Word/Son, made incarnate in Jesus Christ, was subordinate to the Father in such a way that “there was a time in which he [the Word] did not exist.”⁷¹ In a non-extant work attributed to him, the *Thalia*, we read: “The Son has age and magnitude from the will of God. His origin from God has a ‘from when,’ a ‘from which’ and a ‘from then.’”⁷² This understanding of the Son is structurally similar to Plato’s *Timaeus* Demiurge. Rooted in Plato, the writings of Plotinus paved the way for Arius.⁷³ According to his adversary Athanasius, Arius held that “the Father is alien in being to the Son, and he has no origin. Know that the monad [a single subject, the Father] was, but the dyad [a double subject, the Father and the Son] was not, before it came into being.”⁷⁴ In other words, God once existed as one, but subsequently, at creation, the Son came into being, giving rise to a twosome, or dyad. In other words for the purpose of creating the world, God generated the Son and thus “became” a Father.

The following text attributed to Arius expresses his position well.

We know *only one God*, who alone is uncreated [unbegotten], who alone is eternal, who alone is without origin, who alone is true, who alone possesses im-

⁷⁰ Cfr. G. BARDY, *Recherches sur saint Lucien d’Antioche et son école*, Beauchesne, Paris 1936; T.E. POLLARD, *The Origins of Arianism*, «Journal of Theological Studies» 9 (1958) 103-111; L.W. BARNARD, *The Antecedents of Arius*, «Vigiliae Christianae» 24 (1970) 172-88; GRILLMEIER, *Christ in the Christian Tradition*, 1:219-48; R.D. WILLIAMS, *Arius: Heresy and Tradition*, 2nd ed., Longman and Todd, London-Darton 2001, 181-98.

⁷¹ According to the historian SOZOMEN, *Hist. Eccl.* 1:15, and ATHANASIUS, *Contra Arian.*, I, 5, who quotes Arius.

⁷² ATHANASIUS, *Synod.*, 15.

⁷³ GRILLMEIER, *Christ in the Christian Tradition*, 1:224.

⁷⁴ ATHANASIUS, *Synod.*, 15.

mortality, who alone is wise, who alone is good: the sole ruler, the judge of all, the ordainer and governor, unchanging and immutable, righteous and good, the God of the Law and the prophets of the New Covenant, who *brought forth the only-begotten Son* before eternal times, by whom he created the aeons and all things [...] as God's perfect creature, but not as one of the creatures; brought forth, but not as others are brought forth [...] For he is not eternal or as eternal or as uncreated as the Father, nor does he have identical being with the Father [...] rather, as monad and *archē* [origin] of all, he (the Father) is God before all. So he is also before the Son.⁷⁵

Unlike Plato and Plotinus, the Christian Arius holds to the doctrine of God's creation of the world *ex nihilo*. But this means of course that the created world is clearly distinct from the creating divinity. So a question arises that did not present itself for Plato and Plotinus: which side of the divide is the Son on? On God's or on creation's? Arius concludes that the Word is clearly on the side of creation, as a supreme creature, but a creature nonetheless. Grillmeier comments that, for Arius,

the gulf between creation and the transcendent God is unbridgeable, because the "Son" too is on the other side of the gulf and therefore cannot know the Father as he is in himself, but only in the way in which he has the right, that is only with creaturely knowledge [...] Arius would have found it difficult to lay the foundations for a theology of revelation. He sees the Son chiefly as the mediator of creation [...] his *Logos* doctrine is determined cosmologically.⁷⁶

For Arius the *Logos* has to belong to the creaturely realm, "for an immanent principle of form, movement and order cannot belong to the sphere of the transcendent creator God."⁷⁷ It is clear that for Arius the *Logos* is on the side of the created world: "the Son does not exist of necessity, but only in dependence on a decision by the Father."⁷⁸ When Arius speaks of the relationship between the Father and the Son, he is really talking of a relationship between God and the world.⁷⁹

⁷⁵ Letter of Arius to Alexander of Alexandria, cited in GRILLMEIER, *Christ in the Christian Tradition*, 1:226n25 (emphasis added).

⁷⁶ *Ibidem*, 1:228.

⁷⁷ F. RICKEN, *Nikaia als Krisis des altchristlichen Platonismus*, «Theologie und Philosophie» 44 (1969) 321-41, 326.

⁷⁸ Cf. *ibidem*.

⁷⁹ GRILLMEIER, *Christ in the Christian Tradition*, 1:231.

When God wanted to create nature and bring it into being, he saw that it could not participate in the unmixed hand of the Father and his creation; therefore first of all he created and made only the sole, unique one and called this the Son and *Logos*, so that he might be the middle one (i.e. intermediary in a cosmological sense); in this way the rest of the universe could come into being through him.⁸⁰

In the *Thalia* Arius draws the following conclusion:

For God was alone, and the Word as yet was not, nor was Wisdom. Then, *wishing to form us, thereupon He made a certain one*, and named Him Word and Wisdom and Son, that He might form us by means of Him.⁸¹

So why then did God generate the Son? Clearly because “the *Logos* is only created *when the Father wanted to create us*.”⁸²

This position of course marks a significant departure from the proper understanding of the Trinity and creation: according to Arius the Father’s prime intention was one of creating the world, the cosmos, of forming humans, and for that to take place he created the *Logos*. In God’s mind the existence and activity of the *Logos*/Son is subordinated to the work of creation. The Word’s sonship is instrumentalized, as it were, for the sake of the fabrication of the world.⁸³ It is true that several earlier Christian authors likewise situated the generation of the Word in function of creation.⁸⁴ But with Arius the theological conclusions are better delineated; according to Alexander of Alexandria, Arius said that “He (the Son) was created *for our sake*, so that God might create us *through him* as through an instrument; and he (the Son) would not exist if God had not wanted to create us.”⁸⁵

Grillmeier comments: “The Son of the baptismal creed has become the created mediator of creation. His exclusive pre-eminence consists in the fact that he alone was created directly by the Father, the only true

⁸⁰ Arius, cited by BARDY (ed.), *Recherches sur saint Lucien*, frag. IV, 263; ATHANASIUS, *Contra Arian. Or.*, I, 24.

⁸¹ Cited by ATHANASIUS, *Contra Arian. Or.*, II, 5 (emphasis added).

⁸² Cited by BARDY, *Recherches sur saint Lucien*, frag. IV, 262.

⁸³ Cfr. P. O’CALLAGHAN, *Children of God in the World. An Introduction to Theological Anthropology*, Catholic University of America Press, Washington 2016, 255-262.

⁸⁴ Among them, Justin, Theophilus, Tatian, Aristides.

⁸⁵ Cited by GRILLMEIER, *Christ in the Christian Tradition*, 1:231n43.

God. So everything else was created through him [...] True, Arius assigns the created Logos the role of demiurge. But in his view [...] this demiurge is created.”⁸⁶ And in the words of Rowan Williams, for Arius “the *Logos*, as mediator, principle of plurality, source of intelligible structures, exists primarily for the sake of creation, and has no discernible role prior to the Father’s decision to create [...] It could be said [...] that creation is the sole *raison d’être* of the Logos.”⁸⁷

5. *Nicaea and Athanasius*

The Council of Nicaea provided a substantial answer to the teaching of Arius, in the wider context of the teachings of Athanasius, Hillary of Poitiers and other Church Fathers. In a variety of different ways Christian teachers employed the idea, already broached in the New Testament, of Jesus Christ as the Demiurge or *Logos* or mediator not only of redemption but also of creation. From a Christian standpoint, the issue, though complex in detail as we have just seen, is quite straightforward in general terms: does Christ, the Word, in his inner essence, belong to the realm of God, or to that of creation? Or is he an intermediate being, not fully divine, not entirely created? Put in another way, is the Christ—the Word, the Son—to be understood in the light of revelation, of God’s word, of Scripture and the living tradition of the Church, or, rather, in the light of the philosophy of the time, which was of course predominantly Platonic and neo-Platonic?

Arius as a Christian believer could not easily accept the notion of an intermediate being, neither fully divine nor completely created, as Plotinus had suggested, because he took it that the world had been created *ex nihilo*, and so had to posit a clear distinction between God and creation. But it would seem that his understanding of Christ borrowed more heavily from the dominant philosophy than from revelation. In the words of Leslie W. Barnard, Arius’s “system was simply one of philosophical dualism—although not without a biblical coloring in its idea

⁸⁶ IDEM, *Christ in the Christian Tradition*, 1:232 and 236. Arians also speak of the *logos-sarx* Christology, according to which Christ had no human soul: “The Logos has taken over the place and function of the soul” (*ibidem*, 238).

⁸⁷ WILLIAMS, *Arius*, 190 and 196.

of the Sole, Unoriginate God.”⁸⁸ Thus the Word/Son belongs primordially to the realm of creatures, and though the highest of them, is *subordinate* to the Father. Arius insisted on this, as we saw, because he wished to hold on to the unassailable oneness of God and the realism of the incarnation of the Word: if God is one and the incarnation is real, then the Word must be intermediate, situated between one and the other, though clearly on the side of creatures.

And Athanasius with the Council of Nicaea would oppose him on this very front. Grillmeier observes that “the Nicenes will be the better theologians—and philosophers. They rule out the middle sphere which Arius occupied with his created Logos and pneuma, and thus reject the Middle Platonic picture of the world.”⁸⁹ The Council of Nicaea taught as follows: “One Lord Jesus Christ, the Only Begotten Son of God, born of the Father before all ages. God from God, Light from Light, true God from true God, begotten, not made, consubstantial [*homousios*] with the Father; through him all things were made. For us men and for our salvation he came down from heaven. And by the Holy Spirit was incarnate of the Virgin Mary, and became man.”⁹⁰

The text makes it quite clear that the *Logos* in his inner essence belongs fully to the realm of the divine, for he is consubstantial with the Father. It adds of course that “through Him” all things were made, in keeping with the New Testament, and that he became flesh in the power of the Holy Spirit in order to save us. Thus only in an ample sense may it be said that Christ is the mediator of creation, for mediation normally involves a certain distance from the extremes mediated, as Plato, Philo, Plotinus, and Arius explained in a variety of different ways.⁹¹

⁸⁸ L.W. BARNARD, *The Antecedents of Arius*, «Vigiliae Christianae» 24 (1970) 172-188, at 187.

⁸⁹ GRILLMEIER, *Christ in the Christian Tradition*, 1:243.

⁹⁰ DH 150 (emphasis added).

⁹¹ This is also the position of Athanasius, according to J.M. ROBERTSON, *Christ as Mediator: A Study of the Theologies of Eusebius of Caesarea, Marcellus of Ancyra, and Athanasius of Alexandria*, Clarendon Press, Oxford 2007, 172-74.

The principal opponent of Arius of course was Athanasius.⁹² The latter explains the role of the Word (*Logos*) in creation in a highly vivid way, as a divine principle of inner cohesion and life in the world, entirely on the side of God the creator. The following extensive text from his work *Contra Gentes* shows this.

The Father of Christ, most holy and above all created existence, who like an excellent pilot, by his own Wisdom and his own Word, our Lord and Savior Christ, steers and preserves and orders all things [...] But if the world subsists in reason and wisdom and skill, and is perfectly ordered throughout, it follows that the one that is over it and has ordered it is none other than the Word of God. But by Word I mean [...] the living and powerful Word of the good God, the God of the Universe, the very Word which is God, who while different from things that are made, and from all Creation, is the One own Word of the good Father, who by his own providence ordered and illumines this Universe. For being the good Word of the Good Father he produced the order of all things, combining one with another things contrary, and reducing them to one harmonious order [...] The holy Word of the Father, then, almighty and all-perfect, uniting with the universe and having everywhere unfolded his own powers, and having illumined all, things both seen and invisible, holds them together and binds them to himself, having left nothing void of his own power.⁹³

Athanasius goes on to explain the role of Christ as that of a musician performing harmoniously.

And elsewhere he continues:

For by a nod and by the power of the Divine Word of the Father that governs and presides over all, the heaven revolves, the stars move, the sun shines, the moon goes her circuit, and the air receives the sun's light and the ether its heat, and the winds blow: the mountains are reared on high, the sea is rough with waves, and the living things in it grow, the earth abides fixed, and bears fruit, and man is formed and lives and dies again, and all things whatever have their life and movement; fire burns, water cools, fountains spring forth, rivers flow, seasons and hours come round, rains descend, clouds are filled,

⁹² On Athanasius, the bibliography is vast. Cfr., for example, K. ANATOLIOS, *Athanasius: the Coherence of his Thought*, Routledge, London-New York 1998; G. FLOROVSKY, *The Concept of Creation in Saint Athanasius*, edited by E.A. Livingston, Akademie, Berlin 1962, («Studia Patristica» 6), 36-57; J. ROLDANUS, *Le Christ et l'homme dans la théologie d'Athanasie d'Alexandrie. Étude de la conjonction de la conception de l'homme avec sa christologie*, Brill, Leiden 1977; A. PETTERSEN, *Athanasius, Outstanding Christian Thinkers*, Geoffrey Chapman, London 1995; T.G. WEINANDY, *Athanasius: A Theological Introduction*, Ashgate, Aldershot 2007.

⁹³ ATHANASIUS, *Contra Gentes*, 40.

hail is formed, snow and ice congeal, birds fly, creeping things go along, water-animals swim, the sea is navigated, the earth is sown and grows crops in due season, plants grow.⁹⁴

For Athanasius, the divine Word of the eternal Father is the One who makes the world go around.

6. Augustine, Aquinas and Other Theologians

Augustine, Thomas Aquinas and other theologians substantially repeat what Athanasius had said. “For Athanasius, the Cappadocians, John Damascene, and Augustine it was precisely *creatio ex nihilo* which slipped the chains of the destructive dualism prevalent in late antiquity where matter was bad and spirit was good,” observed Janet Soskice.⁹⁵ Augustine speaks of creation as a beautiful hymn.⁹⁶ He comments on the following words of John’s prologue: “that which was made in him [the Word] was life” (Jn 1:3),⁹⁷ a text dealt with similarly by Thomas Aquinas in his commentary on John’s gospel. Aquinas excludes the interpretation of the Manicheans who said that all life is at heart none other than divine life, for there is such a thing as created life.⁹⁸ Likewise he avoids the position of Scotus Eriugena who—in his view—gives a similar, quasi-pantheistic interpretation of John,⁹⁹ and says that all things “are life” in the Word because “the cause of all effects produced by God is a life and an art full of reasons or living ideas.”¹⁰⁰ Thomas also follows the position of Augustine according to which created things may be considered in two ways, either as they are in themselves (some are alive, some or not), or as they are in the Word. In the latter sense all things are alive

⁹⁴ *Ibidem*, 42-44.

⁹⁵ J.M. SOSKICE, *Why Creatio Ex Nihilo? for Theology Today?*, in G.A. ANDERSON, M. BOCKMUEHL (eds.), *Creation Ex Nihilo. Origins, Development, Contemporary Challenges*, University of Notre Dame Press, Notre Dame 2018, 37-54, 49.

⁹⁶ AUGUSTINE, *De Civ. Dei*, XI, 18.

⁹⁷ IDEM, *In Tr. Io.*, 1:17 (on Jn 1:3). Cfr. G. REMY, *Le Christ médiateur dans l’œuvre de Saint Augustin*, 2 vols., H. Champion, Paris 1979; IDEM, *Du Logos intermédiaire au Christ médiateur chez les Pères grecs*, «Revue Thomiste» 96 (1996) 397-452.

⁹⁸ THOMAS AQUINAS, *In Io.*, I, 2 (no. 89).

⁹⁹ Cfr. SCOTUS ERIUGENA, *Hom. super Prol. Io.*, (PL 122:288).

¹⁰⁰ THOMAS AQUINAS, *In Io.*, I, 2 (no. 90).

insofar as their ideas are spiritually present in living divine Wisdom and are identified with it. *Creatura in Deo est creatrix essentia*, concludes Thomas: "In God, the creature is the creating essence."¹⁰¹ As far as God is concerned, the creature is identified with the creator.¹⁰²

When we say that the world was made "through him," this does not mean, for Aquinas, that the Word or *Logos* is a kind of inert instrumental cause (a Demiurge) which acts in a way extrinsic to the efficient cause, as a blueprint for an artifice, as an agent in building, as a pilot for a boat, as a map for a journey, but rather that the living God creates by the Word and for the Word. Augustine had already said as much: "the Word is art, full of the ideas of all living things."¹⁰³ As a result of this living presence of the Word in the world, Thomas adds, each and every creature becomes *vox Verbi*,¹⁰⁴ "the voice of the Word." The *logos ut ratio* derives directly from the *logos ut verbum*.

III. CHRIST AND CREATION: THE CONTRAST BETWEEN GREEK AND CHRISTIAN MIND-FORMS

But what does it mean to say that the created world has been created in and through and for the Word, that the *logos ut verbum* is the origin of the *logos ut ratio*? We have just considered the role of the *Logos/Demiurge* in the making of the world proper to the Platonic tradition in four authors: Plato, Philo, Plotinus, and Arius. In spite of the differences and shifts between and among each of them, a basic structure emerges regarding the relationship and mediation between God and the world, what I shall refer to in general terms as the "Greek *Logos*," located between the creator and the creature. A similar structure may be found within Christian theology, developed in Old Testament Wisdom literature, in Paul and John, with Irenaeus and Justin, with Origen and Athanasius, with Augustine and Thomas, and many others, as we saw above. This may be designated in general terms as the "Christian *Logos*."

¹⁰¹ Cfr. *ibidem* (no. 91). Cfr. REMY, *Le Christ Médiateur*.

¹⁰² THOMAS AQUINAS, *SCG*, IV.13.10.

¹⁰³ AUGUSTINE, *De Trin.*, VI, 10:11.

¹⁰⁴ THOMAS AQUINAS, *I Sent.*, d. 27, q. 2, arg. 3, ad 3.

Drawing on what was explained above and simplifying somewhat the two positions—centered respectively on the Greek and Christian *Logos*—we may contrast and explain them as follows on the basis of five elements: the function of the *Logos* with respect to the creation of the world; the kind of continuity to be found between God and the world that the *Logos* expresses; the relationship between the *Logos* and God; the divinity of the *Logos*; and, last of all, the purpose of the existence of the *Logos*. Let us consider them one by one.

- (a) The function of the Greek *Logos* with respect to the creation of the world is one of giving form, of shaping, of ordering the prime matter that already exists; in that sense the *Logos* does not give existence to beings, it does not create them. On the contrary, through the Christian *Logos*, the perfect Image of the Father, God creates the world, giving it existence *ex nihilo* directly by means of the Word.
- (b) The continuity between God and the world that the *Logos* expresses. The Greek view envisions a profound though hierarchical continuity between all the different elements of reality: between the Supreme Divinity (the Good or the One) at the top, then the demiurge, the *Logos*, the World Soul, the souls of heroes and humans in-between, right down to the purely material world. For Christianity, however, there is a clear and insuperable distinction between the divine and the created sphere, involving two completely distinct ontologies. No ontological continuity—whether hierarchical or otherwise—may be posited between God and the world. All finite beings without exception share the created condition.
- (c) As regards the relationship between the *Logos* and God, we may say the following. Within the hierarchy of beings, the Greek mediating *Logos* is inferior or subordinate to God, because God cannot enter directly into contact with pre-existing matter, or with matter of any kind. Whereas the Christian *Logos* is ‘consubstantial’ with the Father, and through the Incarnation has direct contact with the created world, both material and spiritual, without modifying the nature of either.
- (d) What may be said of the divinity of the *Logos*? The Greek *Logos* is not fully divine because it is limited on the one hand by the world of *Ideas* to which it refers, and on the other hand by the facticity and

opacity of preexisting *matter*. The Christian *Logos* however is limited neither by God (because everything the Father has, the Son also has), nor by preexisting matter (because matter comes into being, whole and entire, at the moment of creation).

- (e) Finally, what may be said of the purpose of the existence of the *Logos*? Why did God generate or emanate the Word? The Greek *Logos* was made or created *on account of the world*, because God, the Good or the One, wished to provide harmony, goodness, beauty and light to all that was disorderly, chaotic, ugly and dark; this provides a cosmocentric or anthropocentric vision of humanity and the created world. From the Christian standpoint the world was made *on account of the Logos*, the Son, and not the other way around; in that sense the Christian vision of the world is 'logocentric,' or better Christocentric; it is neither anthropocentric nor cosmocentric. In absolute terms, in fact, the created world need never have existed.

The last of the five points mentioned above is of particular relevance. From the standpoint of Christian faith, we have seen that the work of creation should be considered as logocentric or Christocentric (or perhaps theocentric), rather than cosmocentric or anthropocentric (closer to the Greek understanding). What does this mean?

For the Greeks, the *Logos* or Demiurge was produced by the supreme divinity with a view to putting order (*kosmos*) on unruly pre-existent matter. In doing so the *Logos*/Demiurge was not fully free in making or shaping the world, but was conditioned to some degree by factors beyond itself. God's hand was forced, to some degree, to give life to an intermediate first-being that would build or shape up the world as we know it. That is, the *Logos*/Demiurge exists in function of the world and not the other way around. The *logos ut ratio*, the rationality of the universe, precedes the *logos ut verbum*, we might say. Thus the world is necessary and the *Logos*/Demiurge is contingent, for it depends on the eternal Platonic Forms.

For the Christian understanding, conversely, the consubstantial *Logos*/Son who became flesh in Jesus Christ exists with the Father for all eternity, in the absence of matter or created objects of any kind. The world therefore is simply and solely the fruit of a completely free act of God through and for the *Logos*/Son, Jesus Christ, in the Holy

Spirit, an entirely unconditioned creative action. That is to say, the world exists on account of the *Logos*/Son—that is, Christ—and not the other way around. At every level, the *logos ut verbum* precedes the *logos ut ratio*. In effect, from the standpoint of Christian faith, the world is fundamentally contingent and completely dependent, whereas the *Logos*, Christ the eternal Son, is necessary and eternal, as necessary as God himself is.

This explains why Scripture speaks not only of the mediating or exemplary role of the *Logos* in the work of creation, but also of Christ as the final cause or ultimate purpose of the created world, a position that is particularly clear in Paul's letter to the Colossians: "all things were created *through* him and *for* him" (1:16). Arius, however, taught that the *Logos* was created so that the Father could create the cosmos, the *Logos* was created 'for our sake, so that God might create us through him as through an instrument.' This was clearly not the Christian position.¹⁰⁵

Christian thinkers saw things differently.¹⁰⁶ According to Maximus the Confessor, the divine work of creation is directed to Christ and not to creation itself.¹⁰⁷ The one divine *Logos* as the source and end of all.¹⁰⁸ McFarland comments on Maximus's position: "all *logoi* abide equally in the one divine *Logos*, and none provides access to the *Logos* apart from the grace of divine illumination [...] In short, the light streaming from Christ enables us to understand the world as God's creation, thereby confirming Jesus as the necessary reference point for all human knowledge of God and the world alike."¹⁰⁹

¹⁰⁵ Cfr. TERTULLIAN, *De res. carnis*, 6; IRENAEUS, *Adv. Haer.*, III, 22:3, 21:10; *Epidexis I*, 2:22.

¹⁰⁶ Bonaventure for example saw Christ as the "absolute final cause of creation," (BONAVENTURE, *III Sent.*, d. 1, q. 2, a. 2). Cfr. L. SCHEFFCZYK, *Schöpfung und Vorsehung*, Herder, Freiburg i. B.-Basel-Wien 1963, 88.

¹⁰⁷ Cfr. MAXIMUS THE CONFESSOR, *Quaest. ad Thalass.*, 2. Cfr. T.T. TOLLEFSEN, *The Christocentric Cosmology of St. Maximus the Confessor*, Oxford University Press, Oxford 2008.

¹⁰⁸ Cfr. MCFARLAND, *From Nothing*, 82.

¹⁰⁹ *Ibidem*, 82. McFarland adds: "Because the unity of creation can be established only in the *Logos* and not through reference to any feature of created being considered in itself, it is not enough to say that God created the world, but it is necessary to specify that God created it *from nothing*," (*ibidem*, 83). Cfr. also A. LOUTH, *Maximus the Confessor*, Routledge, London-New York 1996, 107.

IV. CREATION, THE *LOGOS*, SCIENCE AND REVELATION

In conclusion, two issues may be considered as we compare the Greek-classical and Christian understandings of the divine *Logos*, and the corresponding position of the *logos* or *logoi* present in creatures.¹¹⁰

The first issue is the following. As we have seen, in the Platonic and Neo-Platonic world-view a certain unease may be detected in the relationship between the *Logos* in God and the *logos* present in the created world, which translates into a tension between the *logos ut verbum* and the *logos ut ratio*. The Greek *Logos* is subordinate to the divinity; the created world is a kind of degradation of the divine *Logos*, and thus represents a loss of intelligibility. Indeed, as we have seen, the very existence of the *Logos* as a contingent intermediary being goes to confirm that the material world is fallen and decadent. The fact that the *Logos* exists, as subordinate to the Divinity, therefore, disqualifies at least in part the ability of created human reason to arrive at true knowledge, for both *Logos* and created *logoi* are degradations. Significantly, in the *Phaedo* Plato considers that the empirical world and scientific reflection that flows from it is an obstacle to our knowledge of the truth.¹¹¹ Philosophy and science do not support one another.

In the Christian view, however, the inherent rationality or *logos* present in the world and in the human mind may be considered as a faithful reflection of the divine *Logos*, the *logos ut ratio* of the *logos ut verbum*. Not a perfect reflection, mind, but yes a faithful one... perhaps we could even say, a *filial* reflection, thus providing a path to truth that is fully trustworthy for humans. In simple terms, Christians basically trust reason and created beings because God made them, and made them well. Creating the world through his Son and for his Son, connects the origin and rationality inherent in the created world directly to God, and to God alone. Everything that God does, every mark he leaves on created beings, expresses this divine paternal-filial logic, and nothing else but

¹¹⁰ P. O'CALLAGHAN, *L'incontro tra fede e ragione nella ricerca della verità*, in G. MASPERO, M. PÉREZ DE LABORDA (eds.), *Fede e ragione: l'incontro e il cammino. In occasione del decimo anniversario dell'enciclica Fides et ratio*, vol. 2, Cantagalli, Siena 2011, 35-59; IDEM, *Faith Challenges Culture. A Reflection on the Dynamics of Modernity*, Lexington Books, Lanham 2021, 52-53.

¹¹¹ Cfr. PLATO, *Phaedo*, 65-67.

this logic. ‘I do not call you servants any longer,’ Jesus said to the apostles, ‘because a servant does not know what his master is doing, but I have called you friends, for all that I have heard from my Father I have made known to you’ (Jn 15:15). For this reason, the Christian view of the world actually makes science possible, whereas the Greek (or at least the Platonic) one does not to the same degree.¹¹²

But there is second issue to be considered. The rationality (or word) within the created world and present to the human mind, besides being a faithful (though imperfect) reflection of the divine *Logos*, in turn points unequivocally to God in Christ, is addressed to him, is directed to him. After all, the world was made *for* Christ, for the Word Incarnate, so it finds its meaning by returning to its source. Thus human reason is not merely a calculating machine that provides results and analysis, but points back to God just as it originally derives from God. With the human word, something of a kind happens. The words we pronounce not only reflect what we think (the *logos ut ratio*): they also (attempt to) give rise to a response directed from the recipient to the author (we may speak of the *logos ut verbum*), they are what John L. Austin called ‘performative.’¹¹³ In fact, the prophet Isaiah tells us, the divine word ‘shall not return [to God] without effect, without having done what I desire and without achieving the end for which I sent it’ (Is 55:10f.).

Within creation there is a rationality, a word, an intelligibility, but it is a word that has its origin in God, in the God of Jesus Christ. And God created a mind, that of man, made in his ‘image and likeness’ (Gen 1:27), capable of accepting this word and recognizing in it both its intelligibility and its divine origin. If this process in its double aspect of knowledge and recognition is not verified, as Paul explains at the beginning of the letter to the Romans (1:18-25, cfr. Wis 13:1-9), humans may commit a relevant moral transgression.

¹¹² “Not a few historians of science have pointed out that the Christian faith in a Logos-Creator favored the development of Western scientific thought,” (TANZELLA-NITTI, “Jesus Christ, Incarnation and Doctrine of Logos,” *Interdisciplinary Encyclopedia of Religion and Science* [2008]: <https://inters.org/jesus-christ-logos>).

¹¹³ Cfr. J.L. AUSTIN, *How to Do Things with Words* (1955), Oxford University Press, Oxford 1989.

NOTE

THE HUMANISTIC DIMENSIONS OF SCIENTIFIC RESEARCH

CLAUDIO TAGLIAPIETRA
Pontifical University of the Holy Cross, Rome

ABSTRACT: This article examines Giuseppe Tanzella-Nitti's view on the humanistic dimensions of scientific research, central to his interdisciplinary work over the past two decades. Drawing from his published and unpublished writings and his mentorship in research, the article outlines how Tanzella-Nitti integrates scientific inquiry with humanistic values to bridge theology, philosophy, and science. His approach unifies the epistemological, ethical, existential, and social dimensions of research, suggesting that a humanistic perspective on science not only enhances theological discourse but also contributes to the Church's evangelization efforts within contemporary scientific culture.

KEYWORDS: Scientific Humanism, Theology and Science, Humanistic Dimensions, Interdisciplinarity, Giuseppe Tanzella-Nitti.

RIASSUNTO: Questo articolo prende in esame la visione di Giuseppe Tanzella-Nitti sulla dimensione umanistica della ricerca scientifica, tema centrale nel suo lavoro interdisciplinare degli ultimi due decenni. Attingendo ai suoi scritti, pubblicati e non, e alla sua attività di mentore nella ricerca, l'articolo mostra come Tanzella-Nitti integri l'indagine scientifica con i valori umanistici per creare un ponte tra teologia, filosofia e scienza. Il suo approccio unifica le dimensioni epistemologiche, etiche, esistenziali e sociali della ricerca, indicando che una prospettiva umanistica sulla scienza non solo può arricchire il discorso teologico, ma anche contribuire agli sforzi di evangelizzazione della Chiesa all'interno della cultura scientifica contemporanea.

PAROLE CHIAVE: Umanesimo scientifico, Teologia e scienza, Dimensioni umanistiche, Interdisciplinarietà, Giuseppe Tanzella-Nitti.

SUMMARY: I. *Introduction: A Unifying Thread in the Theological and Interdisciplinary Work of Giuseppe Tanzella-Nitti*. II. *A “Lived” Interdisciplinarity: From the Philosophical Search for Truth to the “Scientific Experience of Foundations”*. III. *The Personalist Dimension of a “Science-Engaged Theology”*.

I. INTRODUCTION: A UNIFYING THREAD IN THE THEOLOGICAL AND INTERDISCIPLINARY WORK OF GIUSEPPE TANZELLA-NITTI

Discussing the humanistic dimensions of scientific research—what we might call a “scientific humanism”—may come as a surprise to those in the humanities, and could even unsettle many scientists, especially when they hear humanities scholars speak about the relevance of their work. To avoid misunderstandings and to properly frame the over two decades of work by Giuseppe Tanzella-Nitti in this context, it is necessary to establish a common ground for our discussion.

We must begin by acknowledging that any conversation about the humanistic dimensions of science must reference the division between the two cultures—scientific and humanistic—that Charles Percy Snow famously diagnosed.¹ This separation has led to the common misconception that only empirical sciences (such as mathematics, physics, and natural sciences) provide objective, true, and indisputable knowledge—the epitome of what is considered “scientific.” On the other hand, the humanities are often seen as the realm of subjectivity, where knowledge is considered provisional and debatable, thus rendering them “non-sciences” by contrast. According to this view, the only way for the humanities to be considered scientific would be for their object of study or epistemological framework to be mathematizable or empirically formulated, or else the *credibility* of their findings—or even the disciplines themselves—would be at risk.

Undoubtedly, this issue is highly complex because it is not science itself that engages in dialogue, but scientists. As the famous physicist Werner Heisenberg rightly remarked «Science is made by men, a self-evident fact that is far too often forgotten».² Mathematics, physics, and biology do not concern themselves with humanistic relevance; rather, it is the mathemati-

¹ The expression “two cultures” was coined by the British scientist and novelist C.P. SNOW, *The Two Cultures* [1959], Cambridge University Press, London 2001.

² W. HEISENBERG, *Physics and Beyond: Encounters and Conversations*, Harper & Row, New York 1971, vii.

cians, physicists, and biologists—as much as the theologians and philosophers—who should raise such questions. If researchers in any field avoid these questions, they may eventually find themselves wondering why they are engaging in scientific work at all. This meta-reflective dimension is crucial for the advancement of human knowledge because intellectual discovery is a personal endeavor, directed toward human beings as its ultimate recipients and beneficiaries, not merely toward the knowledge itself, which is a product of human labor: life scientists develop vaccines so that people do not die; engineers invent airplanes so that people can fly; writers write and artists make art for people to read their writings and see art pieces. Viewed in this light, the work of scientists is just as vital as that of sculptors, poets, literary scholars, theologians, or any other type of researcher.

Giuseppe Tanzella-Nitti's work embraces the challenge posed by natural sciences to theology and philosophy, while also recognizing that the rationalities of various fields of science interact in a "counterpoint" relationship. Much like the distinct voices in polyphonic music, this counterpoint not only enhances each individual field but also allows all the others to progress organically, expressing the unity of the scientist's personal dimensions in a "synthesized knowledge." Pope John Paul II also spoke of the "humanistic dimensions of science" in his address to the Pontifical Academy of Sciences on November 13, 2000. In this speech, the Pope highlighted the «ethical responsibility of scientific research because of its consequences for humanity», noting that this concern has been a constant—though not exclusive—focus of the Church's Magisterium, particularly during the second half of the 20th century. He went on to emphasize that the term "scientific humanism" underscores the importance of an integrated and holistic culture, one capable of bridging the gap between the humanistic and experimental-scientific disciplines. While this separation may be advantageous during the analytical and methodological phases of research, he argued, it becomes less justified and even potentially dangerous during the synthetic phase, when researchers begin to reflect on the deeper motivations behind their work and the "human" consequences of the knowledge they have gained, both on a personal and collective, social level.³

I recall the day when Giuseppe Tanzella-Nitti first spoke to me about "scientific humanism." I had just completed my doctoral studies

³ Cfr. JOHN PAUL II, *Address to the Pontifical Academy of Sciences*, November 13, 2000, n. 2.

in economics and had begun my career as a researcher when I joined the group of young scholars at the SISRI School, which had started a year earlier in 2013.⁴ Tanzella-Nitti, the director, had the habit of meeting with each student individually to share some of the core ideas behind the initiative. One such idea was that interdisciplinary research requires a unified vision of knowledge—a vision rooted in the ancient biblical tradition. From this principle arose an interesting corollary: each person’s field of specialization is, at a deeper level, connected to all other fields, and this connection must be “experienced” in the life of the scientist. It is not merely something to be studied, but something to be lived. Thus, beyond the acquisition of new knowledge, the experience of research is also an intellectual pursuit where science is not only an expression or a product but a lived experience for the researcher. I was given reading recommendations, which I eagerly pursued, recognizing myself in what I read.⁵ Another idea I cherished when I later joined the seminary was the reminder that formation was not about filling minds like vessels but kindling them like torches.⁶

⁴ SISRI is an Italian acronym which stands for International Advanced School for Interdisciplinary Research. For an account of the intellectual project underlying these initiatives, cfr. G. TANZELLA-NITTI, *Interdisciplinarietà e unità del sapere. L’esperienza di recenti progetti di formazione e di didattica*, «Dynamis. Rivista di filosofia e pratiche educative» 5 (2023) 81-95; IDEM, *Dialogue Between Theology and Science: Present Challenges and Future Perspectives*, «Religions» 15 (2024) 1304, 1-22; IDEM, *The Role of Theology in a University Curriculum*, «Church, Communication and Culture» 9 (2024) 361-380. These three synthesis articles form a cohesive “trilogy” about the role of interdisciplinarity in the work of scientists, philosophers, and theologians.

⁵ Cfr. THOMAS AQUINAS, *Summa Theologiae*, I-I, q. 1.; A.D. SERTILLANGES, *The Intellectual Life: Its Spirit, Conditions, Methods* [1921], Catholic University of America Press, Washington 1992; J. MARITAIN, *The Degrees of Knowledge or Distinguish to Unite* [1937], Charles Scribner’s Sons, New York 1959; IDEM, *Integral Humanism: Temporal and Spiritual Problems of a New Christendom*, Cluny Publishers, Providence 2024; E. CANTORE, *Scientific Man: The Humanistic Significance of Science*, ISH Publications, New York 1977.

⁶ The idea originates from an often-misattributed quote found in the Greek philosopher and historian Plutarch’s essay *On Listening to Lectures* in *Moralia*, sect. 48.c: “For the mind does not require filling like a bottle, but rather, like wood, it only requires kindling to create in it an impulse to think independently and an ardent desire for the truth” (Οὐ γὰρ ὡς ἀγγεῖον ὁ νοῦς ἀποπληρώσεως ἀλλ’ ὑπεκκαύματος μόνον ὥσπερ ὄλη δεῖται, ὀρμὴν ἐμποιοῦντος εὐρετικὴν καὶ ὄρεξιν ἐπὶ τὴν ἀλήθειαν); PLUTARCH,

Many more conversations followed in the years after that first one, deepening our relationship from that of a student to a fellow researcher. My progressive involvement in the SISRI School and the DISF Research Center enabled me to see firsthand that “scientific humanism” was not only an ideal guiding generations of scientists, but also carried a profound sense of mission for their work. Through the activities of the School and the DISF Research Center, we were encouraged to cultivate an “experience of foundations” in our research, grounded in a rigorous engagement with primary sources and the testimonies of those who had conducted scientific work—and were willing to share it with younger researchers. The ideal of scientific humanism requires that we take our own scientific work with utmost seriousness, which in turn demands a commitment to personal growth. This is why, from the very first editions of the Permanent Seminar, the emphasis was placed on the intellectual habits required in research.⁷

Above all, Giuseppe Tanzella-Nitti’s vision of scientific humanism was not just a theoretical ideal to be studied through the lives of the greatest intellectuals in history, but a foundational aspect of the mission of the scholar—a responsibility toward society. In simple terms, it was something required of us, something we were called to put into practice in our own daily lives.

II. A “LIVED” INTERDISCIPLINARITY: FROM THE PHILOSOPHICAL SEARCH FOR TRUTH TO THE “SCIENTIFIC EXPERIENCE OF FOUNDATIONS”

In Giuseppe Tanzella-Nitti’s theological and interdisciplinary work, the reflection on the humanistic dimensions of research took on a clearer and more defined shape beginning in 2008. However, these reflections were already present in his earlier work. His experience as both a scientist and a priest led him to contemplate the vocational and missionary

Moralia, in F.C. BABBITT (transl.), *Plutarch’s Moralia in Sixteen Volumes, vol. 1 (1A-86A)*, Loeb Classical Library, Harvard University Press, Cambridge 1927, 257-259.

⁷ The 2013-2016 cycle of the School, focused on “Intellectual Work and Research Methodology,” included a first year (2013-2014) dedicated to the theme of “intellectual habits.” Topics discussed included research as listening, the intellectual life as asceticism, intellectual knowledge and existential experience, as well as sapiential knowledge and the unity of knowledge.

nature of intellectual labor—a theme not new to philosophy and theology and central to the spirituality of Opus Dei, particularly regarding work. This theme also echoes with the teachings of the Second Vatican Council and, with specific reference to intellectual work, with the magisterium of Pope John Paul II. In this spirituality, the intellectual and Christian life are not seen as separate, but rather as interconnected facets of a unified existence, often referred to as a “unity of life,” a concept articulated by Josemaría Escrivá de Balaguer.⁸ For a scientist, this unity of life entails a responsibility toward all people and society at large. For the Christian, work is a vocation; for the priest, it immediately takes on a “ministerial” dimension. For both, echoing the ideas of Teilhard de Chardin human activity, viewed as an offering each person can make of the world to God, finds its essential origin and ultimate fulfillment in the Eucharist.⁹

Tanzella-Nitti’s understanding of this vocational dimension matured through his meditation of the writings of various influential intellectuals, both from the scientific, philosophical, theological and spiritual realms. He often referred to these individuals as the “patrons” of his intellectual work and his efforts to evangelize within scientific culture. These patrons include major figures from the Catholic tradition, such as Augustine of Hippo, Hildegard of Bingen, Albert the Great (to whom Tanzella-Nitti dedicated a nine-year cycle seminars), Thomas Aquinas, Nicholas Steno, John Henry Newman, Francesco Faà di Bruno, Edith Stein, and Pope John Paul II. Additionally, Tanzella-Nitti found inspiration in Escrivá’s charisma and writings. He also drew from biblical figures such as Joseph of Nazareth—the humble carpenter and earthly father of Jesus Christ, “the carpenter’s son” (*Mt* 13:55)—and the Magi, or the Three Wise Men (cfr. *Mt* 2:1–12). He often highlighted these figures as

⁸ Cfr. A. LLANO, *Universidad y unidad de vida según el Beato Josemaría Escrivá*, «Romana» 30 (2000) 112-125; G. TANZELLA-NITTI, *Passione per la verità e responsabilità del sapere. Un’idea di università nel magistero di Giovanni Paolo II*, Piemme, Casale Monferrato 1998.

⁹ I recently explored the Eucharistic dimension of human activity interpreted as an exercise of the common priesthood. This work, done with two liturgist colleagues, appeared in this Journal and focused on Teilhard de Chardin’s writings. Cfr. C. TAGLIAPIETRA, G. ZACCARIA, J.L. GUTIÉRREZ, *Cosmo, Eucaristia e attività umana. Riflessioni teologiche a partire da “La Messa sul Mondo” di Teilhard de Chardin*, «Annales Theologici» 38 (2024) 177-197.

exemplars for scientists, portraying them as sincere and tireless seekers of truth.

The engagement with the humanistic dimensions of science took a more concrete form in the early 2000s, following his encounter with Father Enrico Cantore, a Jesuit priest and author of *Atomic Order* and *Scientific Man* (1977).¹⁰ Cantore had already developed a Christian interpretation of scientific humanism based on the biblical concept of Wisdom and the role of the scientist as a seeker of truth, in dialogue with the leading scientists of his time.¹¹ Their meeting, which took place at Cantore's residence in Oradell, New Jersey, marked the beginning of a fruitful collaboration. In his memoirs, Cantore described their encounter, highlighting Tanzella-Nitti's doctrinal solidity, personal fidelity to Christ and the Church, and his commitment to spreading sapiential-scientific humanism within the Church. Tanzella-Nitti presented Cantore with several projects aimed at fostering the integration of scientific humanism into the Church, including initiatives to train young Catholic scientists and to help priests understand the challenges and opportunities posed by science to human dignity.¹²

His thought first gained explicit expression in a 2005 essay, published in a collective volume, where he explored the personalist dimension of truth and knowledge.¹³ Unlike Cantore, who approached the ideal of scientific humanism through the tradition of Wisdom Christology and the experience of scientists, Tanzella-Nitti pursued this ideal through Thomistic realism and philosophical and theological personalism. These

¹⁰ Cfr. E. CANTORE, *Scientific Man*; IDEM, *The Humanistic Significance of Science*, in G. TANZELLA-NITTI, I. COLAGÈ, A. STRUMIA (eds.), *International Encyclopedia of Religion and Science* (www.inters.org), 2018, DOI: 10.17421/2037-2329-2018-EC-1.

¹¹ I am currently editing the fascinating correspondence between Enrico Cantore and Werner Heisenberg on the topic of scientific humanism, following my recent discovery at the Max Planck Institute in Berlin of extensive correspondence between the Jesuit philosopher and the renowned physicist and Nobel laureate. The manuscript, tentatively titled *Pursuing Scientific Humanism: Letters Between Werner Heisenberg and Enrico Cantore*, will be published soon.

¹² Cfr. E. CANTORE, *A Report on my Apostolate*, Oradell, New Jersey-USA April 2006, unpublished.

¹³ Cfr. G. TANZELLA-NITTI, *La dimensione personalista della verità e il sapere scientifico*, in V. POSSENTI (ed.), *Ragione e Verità*, Armando, Roma 2005, 101-121.

frameworks had already enabled him to theologially distinguish between two dimensions of the concept of *logos*: *logos ut ratio*, the principle of rationality embedded in nature and discovered through the natural sciences (with figures such as James Clerk Maxwell, Max Planck, Louis de Broglie, Albert Einstein, Paul Davies, John Barrow, Roger Penrose, and Richard Feynman as examples), and *logos ut verbum*, the personal word addressed to humanity through creation and, in a certain sense, perceptible in the scientific study of nature (inspired by the theologies of Romano Guardini and René Latourelle, with scientific figures such as Werner Heisenberg, Henri Poincaré, Max von Laue, and others). Tanzella-Nitti argued that truth has an inherently personalist dimension, and that the search for scientific truth is similarly personal. He highlighted the use of analogy, symbolic language, and aesthetic criteria—such as symmetry and elegance—as part of the empirical rationality of science. This contextual dimension of scientific knowledge, as inspired by the work of Michael Polanyi, Thomas F. Torrance, and Charles Taylor's epistemological proposals, formed the basis of Tanzella-Nitti's exploration of the personal dimension of technical-scientific knowledge.¹⁴

A comprehensive articulation of his views on the humanistic dimensions of scientific research can be found in his presentation to the DISF Working Group in October 2009.¹⁵ In this presentation, he outlined four key dimensions: (1) the *epistemological-gnoseological dimension*, which considers non-formal knowledge in understanding scientific objects, such as heuristics, intuition, analogy, and existential-religious preconceptions; (2) the *ethical-moral dimension*, addressing the ethical questions raised by scientific knowledge, such as the relationship between humans and machines; (3) the *aesthetic-existential dimension*, viewing science as a factor in human dignity; and (4) the *humanistic-social dimension*, recognizing that scientific knowledge is a driver of progress and linked to the scientist's responsibility toward society.

¹⁴ Cfr. IDEM, *La persona, soggetto dell'impresa tecnico-scientifica*, «Paradoxa» 3 (2009) 96-109.

¹⁵ IDEM, *Le dimensioni umanistiche della ricerca scientifica: una visione di insieme*, lecture delivered to the Permanent Seminar of DISF Working Group, Rome, October 31, 2009, Document 5/2009, later published as IDEM, *Le dimensioni umanistiche dell'attività tecnico-scientifica*, in *Scienze, filosofia e teologia. Avvio al lavoro interdisciplinare*, a cura di A. Strumia, G. Tanzella-Nitti, Edusc, Roma 2014, 45-72.

While, in our view, the first two dimensions are already well investigated, the second two are more rarely studied, particularly in the philosophy and theology of human activity and constitute an element of originality in Tanzella-Nitti's work. Concerning the *aesthetic-existential dimension*, in his work, he emphasized that researchers often find themselves at the heart of profound existential experiences—experiences that evoke emotions, awe, and reverence in the face of nature, its intrinsic order, and its laws. Many scientists, when reflecting on their research and their encounter with reality, speak of “mystery,” “miracle,” “perception of foundations,” and even an “encounter with the Absolute.” Such experiences often provide the motivation and passion necessary to sustain their dedication, especially during the more arduous phases of research. This “scientific experience of foundations,” as articulated by figures like Planck, Einstein, and Heisenberg, sees nature as a rational and intelligible otherness, endowed with formal specificities that science discovers rather than imposes.

Taking the previously explained distinction between *Logos ut ratio* and *Logos ut Verbum*, Tanzella-Nitti explains that this experience arises from the observation of nature and reflects the idea that the universe, as the work of a personal Creator (*Logos*), manifests a deep rationality (*ratio*) and contains a call to the Word (*Verbum*). The harmony between the human capacity to understand nature and the intelligibility of the created world points to a congruence that goes beyond mere physical phenomena. This experience is metaphysical in nature, meaning it is the scientist, rather than science itself, who undergoes it. It resembles a religious phenomenology, where the subject perceives the dependence of phenomena on a mystery that transcends them and recognizes themselves as part of it. This sense of the sacred, while more evident in basic research, also extends to the technical sphere, where the efficiency and beauty of human craftsmanship reflect a higher rationality, akin to the spirit of artistic creation. Ultimately, recognizing creation as the effect of a personal Word is an act that involves the freedom of the subject. Only in freedom can one be open to the possibility that the ultimate mystery of Being resides in another Person, the Creator, who is not only the source of truth but also the meaning and purpose of all things. This experience can be either embraced or rejected, as it engages both intellect and personal freedom.¹⁶

¹⁶ Cfr. *ibidem*, 64-65.

As to the *humanistic-social dimension* of scientific research, Tanzella-Nitti's vision of scientific humanism, which began to take shape during these years, does not shy away from scientific and technological progress. Rather, it strongly advocates for progress that is inherently humanizing. He stressed that true progress, particularly from a theological perspective, is achieved only when it leads to a deeper "humanization" of the person, which ultimately reflects the fulfillment of God's plan for every creature.¹⁷ Tanzella-Nitti's writings on the humanistic dimensions of scientific research strongly echo Cantore's view of science as a humanistic and humanizing endeavor.¹⁸ Echoing a well-established idea in the teachings of the Catholic Church, Tanzella-Nitti remarked that «the Christian knows that not every accumulation of scientific knowledge or technological innovation is, by itself, a sign of progress. They are so to the extent that the freedom, hope, and purpose underlying that knowledge and its applications are informed by filial charity, by the *form of Christ*. In essence, he affirmed, *charity is the form capable of trans-forming scientific progress into human promotion*».¹⁹

In his supervision of academic theses from 2008 to 2018, Tanzella-Nitti guided several important works, including a dissertation on the epistemological and humanistic openness of science in Steno, as well as a doctoral thesis on the personalist dimensions of technical-scientific research. This thesis reviewed a wide range of authors, including Cantore, while also engaging in dialogue with the philosophy of Maurice Blondel and Michael Polanyi.²⁰

¹⁷ The concept of progress was revisited by Giuseppe Tanzella-Nitti from a fundamental theological perspective in an essay published a few years later; cfr. G. TANZELLA-NITTI, *Progresso scientifico e promozione umana: una riflessione teologica sulla nozione di progresso*, «La Società» 29 (2020) 45-64.

¹⁸ Cfr. E. CANTORE, *Science as Dialogical Humanizing Process: Highlights of a Vocation*, «Dialectica» 25 (1971) 293-316; IDEM, *La scienza come fattore umanistico*, «Il Regno-attualità» 10 (1982) 216-219.

¹⁹ G. TANZELLA-NITTI, *Progresso scientifico e promozione umana*, 61 (our translation). Cfr. GIOVANNI PAOLO II, *Ai partecipanti al congresso "UNIV '80"*, Rome, April 1, 1980, in *Insegnamenti di Giovanni Paolo II*, III, 1 (1980) 780-784; BENEDICT XVI, Encyclical Letter "Caritas in veritate", June 29, 2009, n. 30.

²⁰ Cfr. M.A. VITORIA, *La apertura epistemológica y humanista de la ciencia según Niels Stensen. Sugerencias para la evangelización de la cultura científica*, Pontifical University of the Holy

III. THE PERSONALIST DIMENSION OF A “SCIENCE-ENGAGED THEOLOGY”

In Tanzella-Nitti’s framework, theological reflection on the “scientific experience of foundations” does not merely produce a “theology of science” as theology of scientific discoveries or natural theology; rather, it develops into a true “theology of scientific work.”²¹ The reflection on the humanistic dimensions of scientific research leads Tanzella-Nitti to consider the theological implications of the scientist’s work.

The possibility and actual occurrence of a scientific experience of foundations underscore the need for a theology that speaks within a scientific context, that is a “Science-Engaged Theology”. Such a theology enables a reflection on the reasonableness of faith in Jesus Christ from a unified understanding of reason in dialogue with other sciences.²² Within Tanzella-Nitti’s work, this scientific context is not an eccentric choice nor a mere personal preference rooted in his background as an astronomer. Rather, it is a response to the demands of contemporary theological thought in the context of modern rationality, a path that has been encouraged by the Church’s Magisterium on multiple occasions. In this respect, his project offers one of the few comprehensive and unified responses to the Magisterium’s call over the last quarter-century to develop a new discourse on credibility—an original apologetic that emerges from a genuine encounter between theological and scientific-philosophical reason, intended not only for intra-ecclesial dialogue but also as a witness to the broader academic, scientific, and professional culture.²³

Cross, STL Thesis, Rome 2012, *unpublished*; M. SAVARESE, *Le dimensioni personalistiche della ricerca tecnico-scientifica*, Edusc, Roma 2018.

²¹ Cfr. C.B. KAISER, *Toward a Theology of Scientific Endeavour. The Descent of Science*, Routledge, London-New York 2007.

²² Cfr. G. TANZELLA-NITTI, *Dialogue Between Theology and Science*, 2. The Author refers to recent contributions on “science-engaged” theologies: J. PERRY, J. LEIDENHAG, *Science-Engaged Theology*, Cambridge University Press, Cambridge 2023; M. HARRIS, *A Scientist-Theologian’s Perspective on Science-Engaged Theology: The Case for “Theology of Science” as a Sub-discipline within Science and Religion*, in IDEM (ed.), *God and the Book of Nature Experiments in Theology of Science*, Routledge, London 2024.

²³ As a helpful reminder of the Magisterium’s guidance, cfr. JOHN PAUL II, *Fides et Ratio* (1998), no. 67; BENEDICT XVI, *Caritas in Veritate* (2009), no. 30; FRANCIS, *Evangelii Gaudium* (2013), nos. 132-133; and *Veritatis Gaudium* (2018), no. 4.

Along with the new apologetics developed in the latter half of the 20th century, Tanzella-Nitti favors terms such as “reasonableness” and “grounds for credibility” over “rationality” and “proofs.” This is not simply a matter of lexical preference but stems from a profound respect for theological rationality within the Thomistic tradition and scientific rationality, which remains open to the evolution of knowledge and to deeper understandings of its objects of study. Human reason, *capax Veritatis* (capable of Truth), does not reach assent through algebraic or geometric certainties, but through a convergence of reasons that point toward a historical Person to be loved and engaged with.²⁴

The foundation of this ambitious project rests on a personalistic appreciation of both theology as a science and as a personal endeavor, a rarely emphasized anthropological-theological aspect. Within Tanzella-Nitti’s framework, the personalist dimension of a theology in dialogue with science is one of the project’s most original and innovative features. In this view, both scientific and fundamental theological thought are understood as “personal knowledge.” Drawing from Michel Polanyi, Tanzella-Nitti asserts that «scientific inquiry is never an impersonal or purely objective activity,» as «the subjective and personal dimension of the researcher plays a critical role in the genesis and dynamics of all inquiry».²⁵ He is convinced that re-emphasizing the role of the person as both subject and purpose of scientific and technical pursuits should not remain a mere theoretical conclusion; it must illuminate how we transmit culture, especially scientific culture.²⁶

This idea positions Tanzella-Nitti’s fundamental theology not only “in a scientific context” due to its engagement with scientific thought but also reflective of the reasoning style of contemporary rationality in a world heavily shaped by scientific thought. His approach aligns more closely with the Anglo-Saxon tradition of “Science & Theology” than with a traditional neoscholastic approach to fundamental theology with a touch of scientific

²⁴ Cfr. J. RATZINGER, *Introduction*, in R. GUARDINI, *The Lord* (1937), Regnery Publishing, Washington 1996, XIII-XIV; J. MOURoux, *I Believe: The Personal Structure of Faith*, Sheed & Ward, New York 1959.

²⁵ G. TANZELLA-NITTI, *Le dimensioni umanistiche dell’attività tecnico-scientifica*, 39-40 (our translation).

²⁶ *Ibidem*, 70-71.

insight.²⁷ This orientation is evident in his emphasis on a theology of credibility, which occupies two of the four volumes in his treatise on Fundamental Theology, and in his theology of Revelation, which is sensitive to ecumenical and interreligious dialogue. Even his theology of the act of faith, in the fourth volume of his treatise, is marked by a personalistic understanding influenced by theologians such as Pierre Rousselot and Jean Mouroux.²⁸

In addition to developing a personalistic dimension within the classic themes of fundamental theology, Tanzella-Nitti's thought bears two noteworthy outcomes. The first is the development of a "Theology of Science," where God's revelation through nature is understood as a "dialogue" between humanity and the Creator. The second is his effort to develop a "Theology of Scientific Work," an approach still relatively unexplored in theological circles.

This personalistic dimension of creation, as defined by Tanzella-Nitti, stresses the importance of developing a theology that treats the Logos not only as *ratio* (reason)—we recall it—but also as *Verbum* (Word). Theology is called to take seriously God's revelation through nature—a concept often overlooked in modern theology of revelation.²⁹ Before revealing Himself through salvation history, God offered and continues to offer a witness of Himself as Creator of heaven and earth (cfr. *Dei Verbum*, nos. 3, 6). This perspective impacts the relationship between humanity and nature, as God's revelation through creation is ultimately the source of experiences that scientists often describe: wonder, reverence, contemplation, beauty, and intelligibility.

²⁷ The idea of "science as personal knowledge and a fully-engaging activity" is discussed in IDEM, *Dialogue Between Theology and Science*, 10-11.

²⁸ «It thus seems logical that depersonalized knowledge cannot truly exist. One cannot genuinely know that toward which one has no interest, that which one does not love. The central role of the subject, both epistemologically and, ultimately, existentially, stems from the fact that one can only come to know truth by assenting to it—that is, by giving oneself to it» (IDEM, *Le dimensioni umanistiche dell'attività tecnico-scientifica*, 60 [our translation]). Cfr. MOURoux, *I Believe*; P. ROUSSELOT, *The Eyes of Faith*, Fordham University Press, New York 1990. I have sought to summarize the main lines of Tanzella's four-volume treatise in C. TAGLIAPETRA, *Un nuovo progetto di teologia fondamentale in dialogo con le scienze. Nota in margine all'opera "Teologia fondamentale in contesto scientifico" di G. Tanzella-Nitti*, «Rassegna di Teologia» 63 (2022) 621-630.

²⁹ Cfr. J. SÁNCHEZ CANIZARES, G. TANZELLA-NITTI, *La rivelazione di Dio nel creato nella Teologia della rivelazione del XX secolo*, «Annales Theologici» 20 (2006) 289-335.

This second aspect calls for a theology that values the religious dimension of scientific work and the scientific dimension of theological work.³⁰ Two biblical principles lay the groundwork for this approach. The first is the teaching on the dignity of the human person, created in the image and likeness of God, a principle that allows us to understand humanity as *capax Dei* (capable of God). The second is the personal, dialogical, and rational nature of the created world, which implies a realist approach to human knowledge and portrays humanity as a seeker of God (and, consequently, a seeker of Truth). This perspective is systematically presented in the Magisterium, especially in the Second Vatican Council's pastoral constitution *Gaudium et Spes* and later reaffirmed in John Paul II's encyclical *Fides et Ratio*.

Both outcomes of Tanzella-Nitti's scientific-theological thought are deeply rooted in scriptural and patristic traditions and draw from the history of Christian thought. This is evident in his revival of key theological perspectives, such as the concept of the "Book of Nature".³¹ Another perspective and the contemporary engagement with wisdom literature, including the heritage of Christian Eastern traditions (in particular the *sophiologists* Pavel Florenskij, Sergei Bulgakov, and Vladimir Solov'ëv), which forms the basis for the development of his proposal for a sapiential scientific humanism following the inspiration of the late philosopher and friend Enrico Cantore.³² Tanzella-Nitti defines *theologically*

³⁰ Cfr. G. TANZELLA-NITTI, *Teologia fondamentale in contesto scientifico – Teologia della Rivelazione. Vol. 4: Fede, Tradizione, Religioni*, Città Nuova, Roma 2022, 53-67, 506-523; IDEM, *La dimensione religiosa dell'attività scientifica*, intervento al Convegno annuale dell'Associazione Italiana Teilhard de Chardin, Vicenza, November 12, 2022, *unpublished*.

³¹ The idea is initially outlined from the suggestion in *Fides et Ratio*, no. 19, in IDEM, *Teologia e scienza. Le ragioni di un dialogo*, Paoline, Milano 2003, 35-73. It is developed further in IDEM, *The Two Books prior to the Scientific Revolution*, «Annales Theologici» 18 (2004) 51-83. An updated account of his research on this topic appears in the encyclopedia entry, IDEM, *Book of Nature, Origin and Development of the Metaphor*, in G. TANZELLA-NITTI, I. COLAGÈ, A. STRUMIA (eds.), *International Encyclopedia of Religion and Science* (www.inters.org), 2019 (DOI:10.17421/2037-2329-2019-GT-1), which also references a doctoral dissertation he supervised: O. JUURIKKA-LA, *The Patristic and Medieval Metaphor of the Book of Nature: Implications for Fundamental Theology*, Pontifical University of the Holy Cross, STD Thesis, Rome 2019, *unpublished*.

³² Cfr. IDEM, *Un modo nuovo di guardare l'attività scientifica: l'eredità intellettuale di Enrico Cantore*, in E. CANTORE, *Umanesimo scientifico e mistero di Cristo. Raccolta di scritti (1956-2002)*, edited by C. TAGLIAPIETRA, Edusc, Roma 2023, 7-24.

“scientific humanism” in relation to creation saying that «a theological reflection on the ultimate meaning of scientific activity sees it as an essential part of the task entrusted by God to humanity to humanize the earth. Scientific activity is thus understood as God’s paternal invitation to participate wisely in creation, cooperating in its unfolding».³³

The inclusion of scientific humanism within a theology of scientific work presents fascinating intersections with the theology of earthly realities—a perspective Tanzella-Nitti has inspired me to explore and develop further.³⁴ This area of Tanzella-Nitti’s legacy is promising both for science and theology, and points to a direction for the future of theology and for the evangelizing mission of the Church in today’s world.³⁵

The humanistic ideal in interdisciplinary research, before being an academic focus for Tanzella-Nitti, is part of his pastoral concern as a priest and a man of prayer, dedicated to passing this ideal on to future generations of Christian men and women. To young researchers joining the SISRI who share the Christian ideal, he frequently suggests a prayer for the evangelization of scientific culture, which clearly reflects his scientific-pastoral vision. We want to conclude here with its opening: «Christ, Wisdom of the Father, make us with You, through the Holy Spirit, a perpetual offering, so that, united at the heart of the Church, the universal sacrament of salvation, we may bear witness to truth and love, promoting the dignity of all people—especially in the scientific and technological era of the third millennium—together with Mary, Joseph, and all the saints. Amen».³⁶

³³ IDEM, *Le dimensioni umanistiche dell’attività tecnico-scientifica*, 66 (our translation).

³⁴ Cfr. C. TAGLIAPIETRA, *Por una recuperación de la teología de las realidades terrenas*, «Scripta Theologica» 56 (2024) 161-194; IDEM, *Teología delle realtà terrene. Fondamenti e prospettive*, Rubbettino, Soveria Mannelli 2025.

³⁵ Some of the ongoing projects of the researchers of the Chair of Fundamental Theology at the Pontifical University of the Holy Cross are specifically focused on the theology of Evangelization, the deepening of scientific humanism, and the retrieval of a theology of earthly realities.

³⁶ Cfr. G. TANZELLA-NITTI, A. STRUMIA, *Preghiera per l’Evangelizzazione della Cultura Scientifica*, SISRI, Rome 2023 (our translation), an unpublished booklet with a prayer for the evangelization of scientific culture (approved by the Rome Vicariat on December 13, 2011) and a commentary of the invocations.

UNITY OF LIFE, UNITY OF KNOWLEDGE

University and Scientific Knowledge Enlightened by Josemaría Escrivá's Charism

GIULIO MASPERO

Pontifical University of the Holy Cross, Rome

ABSTRACT: This paper explores the intersection of scientific knowledge and faith through the lens of Josemaría Escrivá's charism, as it informs the unity of life and knowledge within the academic enterprise. Inspired by the work of Giuseppe Tanzella-Nitti, the study examines theological reflections on universities as spaces of integration and dialogue in a postmodern context. Drawing on the Trinitarian ontology, it argues that the unity of life and knowledge is rooted in the relational nature of creation, revealed through the *Logos*. Key themes include the historical evolution of metaphysics in academic settings, the synthesis of faith and reason, and the transformative potential of integrating theology with interdisciplinary approaches. The paper highlights how Escrivá's vision of the university as a "home" fosters intellectual growth while anchoring it in spiritual truth, offering a renewed paradigm for addressing contemporary challenges in higher education.

KEYWORDS: Unity of Knowledge, *Logos*, Trinitarian Ontology, University, Josemaría Escrivá.

RIASSUNTO: Il presente lavoro esplora l'intersezione tra conoscenza scientifica e fede attraverso la lente del carisma di Josemaría Escrivá, che informa l'unità di vita e di conoscenza all'interno dell'impresa accademica. Ispirandosi all'opera di Giuseppe Tanzella-Nitti, lo studio esamina le riflessioni teologiche sulle università come spazi di integrazione e dialogo in un contesto postmoderno. Basandosi sull'ontologia trinitaria, si sostiene che l'unità di vita e di conoscenza è radicata nella natura relazionale della creazione, rivelata attraverso il *Logos*. I temi chiave includono l'evoluzione storica della metafisica in ambito accademico, la sintesi tra fede e ragione e il potenziale trasformativo dell'integrazione della teologia con approcci interdisciplinari. L'articolo evidenzia come la visione di Escrivá dell'Università come "casa" favorisca la crescita intellettuale ancorandola alla verità spirituale, offrendo un paradigma rinnovato per affrontare le sfide contemporanee dell'istruzione superiore.

PAROLE CHIAVE: Unità della conoscenza, *Logos*, Ontologia trinitaria, Università, Josemaría Escrivá.

SUMMARY: I. *(Personal) Introduction*. II. *Metaphysics and University*. III. *The Inspiration of a Charism*. IV. *(Grateful) Conclusion*.

I. (PERSONAL) INTRODUCTION

When I started my first research in theoretical physics, the professor who guided me would occasionally interrupt me and divert me from my work to talk about philosophical questions. Faced with my surprise at his expertise in this area, he explained to me that physicists often do not take an interest in the question of the meaning of life when they are young, but then in their forties they realize that death is a reality and suddenly start talking about philosophy, ending up in some cases talking nonsense because they simply do not know the subject.

This dialogue took place in Como, a city located on the shores of the lake of the same name and embellished by a magnificent 16th-century cathedral. On the façade, right on either side of the main portal, are two canopies with two statues that passers-by normally identify as saints. In truth, they are Pliny the Elder and Pliny the Younger, from the first century of the Christian era, but both pagans. The former was a naturalist, the latter a humanist. The iconographic choice may be shocking to the modern approach, which runs the risk of conceiving science and faith in dialectical opposition. But from a theological point of view, this placement is extremely significant, especially if one reads it from the representation, in the lunette of the same portal, of the adoration of the Child by the three Magi. The message thus conveyed is that the search for truth carried out even by non-Christians leads to God and can be a path to the encounter with the Word made flesh.

The purpose of these first lines of introduction in the personal register is to give reasons for the choice of the theme of the relationship between the unity of life and the unity of knowledge in the context of theological reflection on the university enterprise as a contribution in honor of Prof. Giuseppe Tanzella-Nitti, astronomer and theologian. His academic career is profoundly inspiring for that challenge to «re-think thought» to which the university enterprise is called in the new post-modern era. In particular, his focus on the lives of scientists and their relationship with faith prompted the choice of the topic of inves-

tigation proposed here.¹ For this reason, the theme will be developed through the consideration of the charism entrusted by God to Josemaría Escrivá, which inspired Prof. Tanzella-Nitti's path and which is read here from a theological perspective. At a methodological level, this will be achieved through the analysis of those works of the saint whose historical-critical editions have been published up to the time of writing. Quotations in Spanish have been translated directly into English.²

II. METAPHYSICS AND UNIVERSITY

Pope Francis repeats that at this moment in history we are not merely in an era of change, but in the change of an era.³ The apostolic constitution *Veritatis gaudium* on universities and ecclesiastical faculties is the result of this consideration. The proem of this document is particularly

¹ Cfr. G. TANZELLA-NITTI, *Search for the Unity of Knowledge: Building Unity inside the Subject*, «Annales Theologici» 20 (2006) 407-417 and IDEM, *The Book of Nature and the God of Scientists according to the Encyclical "Fides et Ratio"*.

² The works used with the versions from which they are translated are: JOSEMARÍA ESCRIVÁ DE BALAGUER, *Camino*, edición crítico-histórica preparada por P. Rodríguez, *Obras completas de Josemaría Escrivá*, Serie I: Obras publicadas 1.1, Rialp-Instituto Histórico Josemaría Escrivá, Madrid-Roma 2002; IDEM, *Santo rosario*, edición crítico-histórica preparada por P. Rodríguez (dir.), C. Ánchel y J. Sesé, *Obras completas de San Josemaría Escrivá*, Serie I: Obras publicadas 2, Rialp, Madrid 2010; IDEM, *Conversaciones con mons. Escrivá de Balaguer*, edición crítico-histórica preparada por J.L. Illanes y A. Méndiz, *Obras completas de San Josemaría Escrivá*, Serie I: Obras publicadas 3, Rialp, Madrid 2012; IDEM, *Es Cristo que pasa: homilias*, edición crítico-histórica preparada por A. Aranda, *Obras completas de San Josemaría Escrivá*, Serie I: Obras publicadas 4, Rialp, Madrid 2013; IDEM, *La Abadesa de Las Huelgas*, edición crítico-histórica preparada por M. Blanco y M^a del Mar Martín, *Obras completas de San Josemaría Escrivá*, Serie I: Obras publicadas 5, Rialp, Madrid 2016; IDEM, *Amigos de Dios: homilias*, edición crítico-histórica preparada por A. Aranda, *Obras completas de San Josemaría Escrivá*, Serie I: Obras publicadas 6, Rialp, Madrid 2019; IDEM, *Escritos varios (1927-1974)*, edición crítico-histórica preparada por P. Goyret, F. Puig y A. Méndiz, *Obras completas de San Josemaría Escrivá*, Serie I: Obras publicadas 8, Rialp, Madrid 2018; IDEM, *En diálogo con el Señor: textos de la predicación oral*, edición crítico-histórica preparada por L. Cano y F. Castells, con la colaboración de J.A. Loarte, *Obras completas de San Josemaría Escrivá*, Serie V: Predicación oral 1, Rialp, Madrid 2017; IDEM, *Cartas*, edición crítica y anotada preparada por L. Cano; con la colaboración de J.A. Loarte; introducción de J.L. Illanes, *Obras completas de Josemaría Escrivá*, Serie II: Instrucciones y cartas 1.1-2, Rialp, Madrid 2020.

³ Cfr. FRANCIS, *Speech at the Fifth National Conference of the Italian Church*, Florence, 10-XI-2015.

important because it points out a concrete way to respond dialogically to the challenge that postmodernity poses to those who carry out the academic enterprise under the inspiration of faith. The *incipit* of the document joins the Patristic heritage with the Magisterium of the Second Vatican Council, laying the foundation of the text in the affirmation that Christ is not an abstract idea, but the living Word, Light of every human being,⁴ because only He can introduce us to the Mystery of the Father and His Love, thus revealing man to man and making each person know his own very high vocation.⁵ This is why the joy of truth, which gives the apostolic constitution its title, expresses the yearning desire of the human heart that is restless «until it encounters and dwells within God's Light, and shares that Light with all people.»⁶ The verbs in the text are particularly important, because they refer to *encountering*, *dwelling* and *sharing* with all people, tracing a real programmatic scan of university work.

These verbs reveal, in fact, the dynamic dimension of thought itself and of the quest, together with the tension towards unity, understood both vertically with the Creator and horizontally with all human beings and the whole of creation. This dynamic, which from the encounter with the Light of Christ leads one to dwell in It so as to be able to bring It to everybody, is explicitly Trinitarian and characteristic of the Church, as the people gathered by the God of Jesus Christ and set on a journey together to bring all things back to the Father with the Word in the Spirit of their Love. The joy of the Truth has its source, therefore, in the unity of the Triune God, from which the Church's mission in favor of every human being and creation itself is driven. Indeed, «God wants to associate humanity to that ineffable mystery of communion that is the Blessed Trinity, of which the Church is a sign and instrument in Jesus Christ».⁷

⁴ Cfr. Jn 1:4.

⁵ Cfr. SECOND VATICAN COUNCIL, Pastoral Constitution *Gaudium et Spes*, 7-XII-1965, no. 22.

⁶ FRANCIS, *Veritatis Gaudium*, 29-I-2018, n. 1 with reference to Augustine, *Conf.*, X, 23.33; I,1,1.

⁷ *Ibidem*, n. 2.

This, according to the indications of the proem of *Veritatis Gaudium*, must have a concrete reflection in the renewal of ecclesiastical studies, under the guidance of four fundamental criteria: (a) the contemplation and introduction to the heart of the *kerygma*, in order to develop a Christian culture capable of recognizing and highlighting the web of relationships constitutive of reality due to the Trinitarian dimension of its Creator; (b) the inseparability of *logos* and *dia-logos*, not as a tactical choice, but as the only possibility of access to creation precisely because of the Trinitarian, hence relational, root that founds it; (c) the inter- and trans-disciplinarity not presented as a mere method, but as an intrinsic requirement of the path of wisdom, inseparable in itself from creativity; (d) up to the need to develop an ever more extensive and dense network between the different ecclesiastical institutions and between the latter and the civil ones.⁸

The relevance of the indications contained in this proem for the topic at hand is evident. Just as it is immediate to grasp even more the value of Prof. Tanzella-Nitti's academic career in the light of these indications. This is linked to his profoundly theological conception of the university.⁹ In fact, it is the place that the Christian faith has created starting from the Trinitarian revelation to take care of the question of meaning and its universal claim, as I already learnt as a young physicist. In fact, the study of the various disciplines is structured as a university enterprise when one has faith that the individual parts make sense together. But this is only made possible if one believes that the world was created in Christ, so that nothing in creation is apart from the *Logos*. Indeed, the second divine Person is the Son who is always eternally turned towards the Father, as the Johannine prologue teaches. Therefore, the world has a meaning (in Greek precisely *logos*) that thought can find, recognizing a unity between the different parts and, therefore, the different disciplines, precisely because the Creator is triune.

Contemporary theology calls such a perspective “Trinitarian ontology”, i.e. a reading not only of God's being in a Trinitarian key, as

⁸ See *ibidem*, n. 4.

⁹ Cfr. G. TANZELLA-NITTI, *Il ruolo della teologia nell'università: il dibattito dell'epoca moderna e le prospettive odierne*, in J. LEAL, M. MIRA (edd.), *L'insegnamento superiore nella storia della Chiesa: scuole, maestri e metodi*, Edusc, Roma 2016, 523-538.

Christian dogma had to learn to do, but also as a reading of creation in the light of the Trinitarian depth of its Creator.¹⁰ The connection of this approach with the university enterprise can be grasped by retracing the development of the “places” of research that have characterized the history of human thought in parallel with the solutions to the fundamental metaphysical question of the relationship between the One and the many.

This allows us to grasp how the momentum of thought towards the world cannot be uprooted from the question of the first principle or the ultimate cause, as modernity has claimed. The crisis of the current university institution can be traced precisely to an anti-religious prejudice, first, and anti-metaphysical, later, that has dialectically opposed modern research to that of the thought that preceded it.

For example, Plato at the end of *Tīmaeus* calls the sensible world “god” as the “only-begotten son” of the intelligible world.¹¹ From this perspective, the philosophical act is linked to love as the desire to generate in the beautiful.¹² Human thought can, in fact, follow the chain of “friends” back to the divine One as the “first Friend”.¹³ This implies going beyond the material world with its imperfect images, as in the myth of the cave,¹⁴ to the exclusively intelligible dimension, that is, to the perfection constituted by the world of ideas.

This metaphysical conception is deeply linked to the confrontation with the Sophists, whose criticism of myths undermined the foundations of the *polis* itself. If the *logos* is just words, without any connection with being and, therefore, with the truth, the law of the strongest applies. The issue is terribly topical, as demonstrated by the myth of *Theuth*,¹⁵ in which the king of Egypt refuses the gift of writing offered to him by the deity who gives the myth its name, on the basis of the consideration that this would lead his citizens to stop remembering “from within” and rely on a technique that would gradually lead them to ignorance.

¹⁰ Cfr. P. CODA (with M.B. CURI, M. DONÀ, G. MASPERO), *Manifesto*, Dizionario Dinamico di Ontologia Trinitaria I, Città Nuova, Roma 2021.

¹¹ Cfr. PLATO, *Tīmaeus*, 92c.

¹² Cfr. IDEM, *Symposium*, 206e; 208ab.

¹³ Cfr. IDEM, *Lysid*, 219d.

¹⁴ See IDEM, *Republic*, 516-517.

¹⁵ Cfr. IDEM, *Phaedrus*, 274c-275b.

The question of the *logos* was linked to Parmenides and his assertion that only the One is, while the many are not. This implied that all reasoning would be impossible, because it gets at the reason of what is through the investigation of a succession of causes, thus traversing what for the Eleatic school was “non-being”, i.e. multiplicity. Paradoxes such as that of the liar or Achilles and the turtle were intended to demonstrate the impossibility of reasoning. But Plato’s thought could not stop at Parmenides because he was faced with the Sophists, to whom he had to show through thought that myths, beneath their fantastic shape, had a truthful content. Thus, in his work *Sophist*, he performs a symbolic parricide of Parmenides by introducing participation, i.e. by asserting that there are realities that are not Being but are, i.e. have a part in being. Or, put another way, there is a non-being that is because it is not Being with a capital but participates in being itself. This is Plato’s proposed solution to the question of the relationship between the One and the many.

From it derives a “soteriological” conception of thought and its exercise, giving rise to a corresponding place for its exercise, a place called *Akadêmia*. It consisted of an estate some six stadia from Athens where the great philosopher taught after his return from Italy around 387-388 BC. To grasp the connection with the metaphysical question and the confrontation with the sophists, it is important to go back to the origin of the name, which derives from *Akadêmos*, an Athenian hero buried there, whose myth tells us that he had saved Athens from the wrath of the Dioscuri, enraged by the kidnapping of their 12-year-old sister Helen, whose beauty would later be the cause of the Trojan War.¹⁶ For the conception of the place of knowledge, the etymology of the hero’s name seems important, as it refers to the meaning «he who is distant from the people», consistent with Plato / Socrates’ conception of the metaphysical enterprise, aimed at preserving the *polis* through *logos*, as opposed to *doxa*, which the sophists manipulated with words. The metaphysical solution induced an exclusivist and aristocratic conception of the place of thought.

Quite different is what happens with the Christian era. The popular dimension of Christianity, well highlighted by Jean Daniélou as an

¹⁶ See C.M. ANTONACCIO, *An Archaeology of Ancestors: Tomb Cult and Hero Cult in Early Greece*, Rowman & Littlefield, Lanhan 1995, 187-189.

essential trait that the Edict of Constantine in 313 allowed to emerge,¹⁷ was at the origin of a confrontation between the different theological schools and the different traditions of Christian initiation, which religious freedom allowed to become known. Thus, the metaphysical question of the relationship between the one and the many became central to the Council of Nicaea and throughout the 4th century up to the First Council of Constantinople. The need to state the unity of God and the personal distinction of the Father, Son and Holy Spirit forced a distinction between substance-essence on the one hand and person-hypostasis on the other. This necessitated a reconfiguration of Aristotle's categories, particularly with regard to the relationship between first and second substance, along with the possibility of introducing the relationship, the least of the accidents, into the very immanence of the one eternal substance that is God. The preposition "from" implicit in the names of the divine Persons, particularly those of the Father and the Son, was thus reconfigured.

Indeed, Nicaea's formula «God from God, Light from Light, true God from true God», with its inclusive structure, aims at the very heart of the metaphysical question. Platonic participation, which arose from Parmenides' parricide, speaks of being with a lower case in relation to Being with a capital letter. With the *homousios* and the Trinitarian discussions of the 4th century, the preposition "from" was resemantized as a connection between Being and Being both with a capital letter, that is, as a relation that is situated *in* the immanence of the divine substance itself, i.e. in the womb of the One.

This gave rise to a new reading of the world, because the creative Word was understood as the Son of the Father, whose identity is inseparably connected to their Love, that is, to the Holy Spirit who with them created the world. Matter, then, finds its root in the eternal relationship between the divine Persons, thus being imbued with logos and holiness. The world is, therefore, profaned by sin, but not profane in itself according to God's plan, as Olivier Clément has written.¹⁸ Everything, then, has its unity in that one "verse" constituted by the Son's being turned towards the Father in the Holy Spirit.

¹⁷ Cfr. J. DANÉLOU, *L'oraison problème politique*, Fayard, Paris 1965, 12.

¹⁸ Cfr. O. CLÉMENT, *The Roots of Christian Mysticism*, New City, New York 1995, 226.

This “reading” of creation in the light emanating from the Trinity will be the foundation of the new Byzantine and medieval era. The legacy of Patristic thought made it possible to organize every dimension of human knowledge and civil life around the center that is God. This, while perceived as absolutely transcendent, is also present in the world, founding it *ab aeterno* from within the intimate Trinitarian life and redeeming it in salvation history to bring it back to its fullness. This simultaneously transcendent and immanent character of the Christian Logos will be at the origin of that institution we call a university, understood as a house both of studies and of scholars and students (*universitas studiorum* and *universitas magistrorum et alumnorum*). This house of studies, open to all because it is addressed to all in Christ, is founded precisely on the Trinitarian conception, hence on the solution to the question of the one and the many offered as a gift by Christian revelation. In fact, just as substantial unity and personal distinction in God are given in the relationship, so unity of truth and disciplinary distinction are given in the place of study founded in them, which is conceived as a “home”. Wisdom literature is thus re-read in a Christological and Trinitarian sense, making possible a unified and relational approach to creation: «All things are two by two, one in front of the other, He has made nothing incomplete. The one confirms the merits of the other: who will be satisfied with contemplating His glory?».¹⁹

This is made possible by contemplation that reads that one “verse” that in Christ becomes accessible to the human being as the relationship of the finite with the infinite paternal Source. This excludes the possibility of dialectics, as legitimate differences can never be absolutized and opposed, because they are perceived as traces of the relational identity of every creature.

With modernity, this vision was secularized and radically reduced. The end of the Middle Ages had brought out the risk inherent in this tension towards a unitary vision made possible by reading creation in the light of Trinitarian revelation. The hermeneutic effort, in fact, particularly present at the level of abbeys, made it possible to move between the spheres of *historia naturalis*, philosophy and theology without interruption. The great advances of the subsequent era also have

¹⁹ Sir 42:24-25.

their foundation in this transition. But at the same time, human intellect had to face the risk of closing in on its own unitary vision, losing that openness to the surplus of reality over thought that characterized the Patristic approach. Descartes' *cogito* with the claimed self-foundation of the subject in its own act of thinking initiated a new era, marked by the tension towards autonomy. From the (alleged) separation of *res cogitans* and *res extensa*, studies increasingly overshadowed the inherent relationality in reality, moving away from the sapiential approach.

This gave rise to a new "home" of study, which can be identified in the Enlightenment with *Encyclopaedia*. Its etymology is extremely significant because it connects the circle (*en-cyclo*) and education (*paideia*), semantically shifting from education to information and enclosing knowledge in an articulation of bodies only juxtaposed but not interpenetrating. Philosophy and theology are increasingly being not only distinguished, an absolutely legitimate process, but also separated, a deleterious operation that makes it difficult to read metaphysics with the religious impetus that had marked its beginnings and that, at the same time, risks condemning theology to the self-referentiality of a language that can no longer reach those who do not believe. As a result, the various sciences are also becoming enclosed within an increasingly narrow disciplinary sphere characterized by an increasingly specialized language that is incapable of communicating with other spheres.

This brings us to the present situation, in which the divorce between knowledge and life is consummated. Logical and scientific reductionism, in fact, takes as its method that of analytical division and reduction into parts. But life is always metaphysically founded on unity. This is why modern reason has not only lost the capacity to generate, an act that the etymology of "concept" still reveals, but is even in danger of demanding the at least symbolic killing of the reality studied in order to know it. This is "diabolical" in a still etymological sense, because if knowledge is only obtained by dividing (*dia-ballein* in Greek), one can no longer study life. The risk is not for God, who is Life, but for the human being, who participates in life through his or her relations, both natural and cultural.

With the transition to the new post-modern era, awareness of this risk is increasingly emerging. Thus, the call for interdisciplinarity and transdisciplinarity can be read at the same time as a declaration of the

death of the university, which is originally constituted on them, thus differentiating itself from the technical schools, but also as a cry that rises up to demand a new form of thinking that succeeds once again in combining knowledge and life. This does not arise from an *a priori* ideological or confessional position, but from within the scientific and university enterprise itself, which, in order to overcome the hypertrophy of means and hypotrophy of ends typical of the present time, tends to recover unity in the distinction (without separation) of science and technology, of ends and means, of spirit and matter, thus going beyond modernity.

III. THE INSPIRATION OF A CHARISM

This need to overcome modernity can be traced back to the realization that the pretense of bringing knowledge solely under the banner of epistemology, completely alienating it from metaphysics, has proved not only unsuccessful, but in the first place, unsound. The preoccupation with the scientific method has overshadowed the truth that it always rests on a metaphysical option, however implicit. A simple example can illustrate this passage: to observe the stars, as Prof. Tanzella-Nitti did when he worked as an astronomer, I need a telescope, whereas a microscope would not work, and vice versa if one wanted to observe cells, so that the answer to the question of the method of research can never be separated from the question of “what is” the object of my study. When, on the other hand, such a separation is given, one is inevitably resorting to a hidden and unspoken metaphysical option. Specifically, the Cartesian legacy has imposed a disciplinary individualism that dialectically opposes knowledge and relation. The latter would even be negative and anti-scientific. In light of the above, the current fragmentation is an inevitable consequence.²⁰

In fact, in this context, the verbs *encounter* (the Light of God), *dwell* and *share* of *Veritatis Gaudium* have no place, because they presuppose that knowledge of oneself and of the world is founded on the light emanating from the Creator through reason, on the natural level, and through faith, on the supernatural level.

²⁰ For a positive proposal, see P. DONATI, A. MALO, G. MASPERO (eds.), *Social Science, Philosophy and Theology in Dialogue: A Relational Perspective*, Routledge, London 2019.

This harmony between faith and reason founded on the personal relationship with the one Creator is the foundation that allows Josemaría Escrivá, starting from the charism entrusted to him by God, to develop a conception of the university as «a home of peace, a haven of serene and noble restlessness, which facilitates the study and training of all».²¹ This reference to the university as a “home” in which the paradoxical coexistence of restlessness and peace can take place is theologically founded precisely on the impossibility of conceiving knowledge apart from personal relationship, from which the mutual recall of unity of life and unity of knowledge derives.

By unity of life here is meant not only coherence between what one believes and what one chooses in one’s concrete existence, but also living and working together, which for the Christian is a real obligation even on a scientific level.²² Escrivá repeated an icastic expression indicating the need for the faithful to have the piety of a child and the sound doctrine of a theologian, because love arouses the desire for knowledge of the beloved:

The desire to acquire theological science – good and sound *Christian doctrine* – is driven, first and foremost, by the need to know and love God. At the same time, it is also a consequence of a faithful soul’s concern to discover the deeper meaning of this world, the work of the Creator.²³

The unity of life and knowledge is evident in the quoted text, which points simultaneously to the Trinitarian foundation of this unity, for the inseparability of the two divine processions, and to a fundamental consequence of this unity that makes possible, as we have seen, the development of the university enterprise as “home”. The concern to read the profound meaning of creation, in fact, derives precisely from faith in the unity that the Trinity pours into creation. And this does not only concern the ecclesiastical sphere, but has an eminently lay dimension linked precisely to creation in Christ. Escrivá writes:

We can imagine – to bring us somewhat closer to this unfathomable mystery – that the Trinity, in its intimate and unbreakable relationship of infinite love, eternally decides that the Only-Begotten Son of God the Father should take

²¹ J. ESCRIVÁ DE BALAGUER, *Conversaciones*, n. 78b.

²² Cfr. IDEM, *Camino*, n. 338.

²³ IDEM, *Es Cristo que pasa*, n. 10.

on the human condition, taking on our miseries and sorrows, to end up nailed to a wood.²⁴

The ideal concatenation underlying this text is extremely powerful. Firstly, the Trinity is Mystery of Love in which the reason for unity and the reason for plurality coincide, because absolute Love itself requires an eternal Lover, an eternal Beloved and the eternal act of Love that unites them. But this implies that creation by the triune God is eminently an act of love, which therefore refers back to the union of the Lover with the beloved, here now written in capital letters, the former, and in lower case the latter, unlike in the Trinity. The incarnation is thus contemplated “from within” the Trinity itself, inseparably from the creative act as its fulfilment. This in no way undermines the absolute freedom of the Creator, but rather reinforces it. This is why it is important to emphasize that the reference to the Passion at the end of the quoted passage does not refer to a will of the Father for the Son to suffer, but to the unconditional readiness for love itself that men take to the extreme, crucifying the Logos who became flesh.

In Escrivá's view, the freedom of God's children becomes the ultimate meaning of the world and history, because the very reason for creation is Love. This makes it possible to contemplate reality in its ontological depth, recognizing the relational web that sustains it in being, the true basis of the possibility of the university enterprise. But such a reading, grounded in the perception of God's Love, is not merely sentimental, because it implies recognizing the “drama” that freedom introduces into history. This is characterized by «indeterminacy», since it is «open to multiple possibilities that God did not want to preclude»,²⁵ running the «risk» inherent in it²⁶ and in the «chiaroscuro»²⁷ that characterizes it, up to the extreme of the cross.

The charism received by Josemaría Escrivá led him to read the Sacrifice of Christ in Johannine terms, as a place where it is possible to encounter the Light of the Word who became flesh to enlighten every man:

²⁴ *Ibidem*, n. 95.

²⁵ *Ibidem*, n. 99.

²⁶ *Ibidem*, n. 113.

²⁷ IDEM, *Amigos de Dios*, n. 24.

Instaurare omnia in Christo, this is St Paul's motto for the Christians of Ephesus (Eph 1:10); to inform the whole world with the spirit of Jesus, to put Christ in the bowels of all reality: *Si exaltatus fuero a terra, omnia traham ad meipsum* (Jn 12:32), when I am lifted up from the earth, I will draw all things to myself. Christ, through his Incarnation, his working life in Nazareth, his preaching and his miracles in the quarters of Judea and Galilee, his death on the Cross, his Resurrection, is the center of creation, he is the Firstborn and the Lord of every creature.²⁸

The unity of creation is, therefore, reconstituted by the Word who becomes flesh and loves man and the world itself to the extreme. This founds the possibility of encountering the One who is the meaning of everything also in daily life, in work and, therefore, in research. Hence, «An hour of study, for a modern apostle, is an hour of prayer».²⁹

In this way, the effort to recognize the meaning of the cosmos and the effort to gain knowledge from creation can be read from the perspective of the relationship with the incarnate Logos. And this translates into the possibility of recognizing Him in one's neighbor, to whom one is connected like the verses of a poem:

We must recognize Christ who comes to meet us in men, our brothers. No human life is isolated; every life is intertwined with other lives. No person is a verse in itself: we are all part of the same divine poem that God writes with the contribution of our freedom.³⁰

In this way, the first verb, *encounter*, of *Veritatis Gaudium* makes the second possible, that is, to *inhabit* the Light of God. Nature and human world, in fact, cannot be understood in a dialectical sense with respect to the Creator, whose Love makes every corner of the cosmos and history "home" to God and His children:

Everything that is honest, down to the smallest event, contains both human and divine significance. Christ, the perfect man, did not come to destroy what is proper to the human condition; but by taking on our nature – except sin – he came to ennoble it, he came to share all the anxieties of man, except the sad adventure of evil.³¹

²⁸ IDEM, *Es Cristo que pasa*, n. 105.

²⁹ IDEM, *Camino*, n. 335.

³⁰ IDEM, *Es Cristo que pasa*, n. 111.

³¹ *Ibidem*, n. 125.

In this way, it becomes possible not only to read the world and history in the light emanating from Trinitarian revelation, but also to inhabit creation through the warmth and power of that light. And this radically affects everything. The possibility of *inhabiting* the Light of God is thus configured as a response to God's love for mankind that leads him to *dwell* among us. The giving of Trinitarian Love, with the unity and distinction of the Lover, the Beloved and their bond of Love, makes love for the world possible, the world that is no longer considered profane, even though it was profaned by original sin:

There is nothing that is foreign to the attentions of Christ. Speaking with theological rigor, without limiting ourselves to a functional classification, we cannot say that there are realities – good, noble, and even indifferent – that are exclusively profane: because the Word of God established his dwelling among the children of men, hungered and thirsted, worked with his hands, knew friendship and obedience, experienced pain and death. *For it pleased God to make all things complete dwell in Christ, and through him to reconcile all things to himself, by the blood of his cross to reconcile the things that are on earth and those in heaven (Col 1:19-20).*

We must love the world, work, human realities. Because the world is good: Adam's sin broke the divine harmony of creation, but God sent his Only Begotten Son to restore peace. And so we, having become children of adoption, can free creation from disorder and reconcile all things with God. Every human situation is unrepeatable; it is the result of a unique vocation that must be lived intensely, realizing the spirit of Christ in it. And when one lives Christianly among one's fellow human beings, in an inconspicuous but faith-consistent manner, each of us is *Christ present among men*.³²

Thus the work and study of men becomes a work of liberation that brings out the uniqueness of each person and each creature, because the meaning of everything, absolutely everything, is divine filiation. Then it becomes possible to be for others Christ who passes by, that is, *alter Christus, ipse Christus*, with a bold formula by Escrivá.³³

The encounter with the Light and the act of dwelling with it makes it possible, then, to share that Light and that Love with every human being, precisely through the unity of life and knowledge, made

³² *Ibidem*, n. 112.

³³ Cfr. P. O'CALLAGHAN, *The Inseparability of Holiness and Apostolate. The Christian, 'alter Christus, ipse Christus', in the Writings of Blessed Josemaría Escrivá*, «Annales Theologici» 16 (2002) 135-164.

accessible by Trinitarian revelation. The *meeting* and *dwelling* of *Veritatis Gaudium* are therefore followed by *sharing*:

The Christian, in making Christ present among men by being Christ himself, seeks not only to live an attitude of love, but also to make God's love known through his human love.³⁴

Sharing the Light of Christ cannot only take place on the outside, as if it were information or abstract knowledge. Instead, it is the very life of the Christian that becomes the "place" of the encounter, because the faithful is the "home" of the Trinity and, therefore, inhabits the Mystery. This is not a mere enigma or riddle, the answer to which is inaccessible due to the limits of the knowing subject. Instead, it is a cognitive limit linked to the infinite depth of the known object, which at the same time is the eternal and omnipotent Subject that relationally founds the being of reality itself.

Thus knowledge is inseparable from love, to the extreme that it is the human love of the Christian that transmits divine Love. Knowledge of the Light of Christ is thus given in life, in the unity of life that becomes unity of knowledge. In this way, research can become an expression of love for God and the world, as a response to the Love of the triune God who created the world. In this line, the study of theology should also be proposed to the laity, because the love for Christ founded in baptism implies the tension towards the knowledge of the Beloved.

But this also extends to the whole of creation, whose ultimate meaning is Christ himself. Escrivá has very theologically pregnant expressions, such as when he states: «there is something holy, divine, hidden in the most ordinary situations, which it is up to each one of you to discover.»³⁵ This *quid divinum*³⁶ is not a superstructure that is added from outside by grace to daily life, work or study, but for creation in Christ already the natural level speaks of its Creator, even if only the light of revelation allows one to fully grasp this message. Escrivá writes with great depth:

If the world has come from the hands of God, if He has created the human being in His image and likeness, and has given the very human being a spark of His light, the work of the intelligence must – even if it is hard work – disen-

³⁴ J. ESCRIVÁ DE BALAGUER, *Es Cristo que pasa*, n. 115.

³⁵ IDEM, *Conversaciones*, no. 114.

³⁶ *Ibidem*, n. 116a.

tangle (*desentrañar*) the divine meaning which all things already naturally have; and with the light of faith, we also perceive their supernatural meaning, that which results from our elevation to the order of grace. We cannot admit the fear of science, because any work, if it is truly scientific, tends to truth. And Christ said: *Ego sum veritas*. I am the truth.³⁷

The sequence of quotations so far culminates in this extremely theologically pregnant passage. The foundation is the creation of the human being in His own image and likeness by God, for which the possibility of knowing and searching, with all the effort this entails, is an essential element of being human. The task of reason is defined as bringing out from the bowels of reality (*desentrañar*) the divine sense that every reality has, note well, naturally. This does not oppose, nor is it superimposed on the supernatural sense characteristic of the order of grace, in a declination of union without confusion and distinction without separation that makes it possible to unconditionally welcome scientific research because everything tends towards truth, the fullness of which, both for the human being and for the world and history, is given in Christ.

All this can be read from the perspective, already mentioned, of Trinitarian ontology, that is, in that reading of creation made possible by the Trinitarian light, which brings out the relationality of the real and, therefore, of truth itself. Escrivá's Christocentrism is thus configured in a Trinitarian sense, radically distinct from any form of Christomonism.

In this way, the unity of life and knowledge that should characterize the university is presented under the sign of universality, made possible by the truth of Christian salvation, which precisely because it is true and precisely because it is authentic salvation concerns every thing and every human being.³⁸ The role of intellectuals in society is thus linked to the possibility they have of having an overall vision.³⁹

Hence, the unity of knowledge that makes the university enterprise possible is founded, in the light of that participation in the Trinitarian life made possible by the charism received by Josemaría Escrivá, in the creation in Christ, hence in the reading of the cosmos, of history, of ev-

³⁷ IDEM, *Es Cristo que pasa*, n. 10d.

³⁸ IDEM, *Amigos de Dios*, no. 230.

³⁹ IDEM, *Cartas 3*, 87a.

eryday life made possible by Christian revelation. But this is not understood in a merely intellectual sense, but as a personal relationship with the three divine Persons, showing how the unity of life that underpins the unity of knowledge is a gift of the triune God. Unity of life, in fact, is in itself a pleonasm, because there is no life without unity, but this unity is not merely the logical unity of the geometric point, because it is always a reflection of the Trinitarian unity of the Creator and Redeemer.

IV. (GRATEFUL) CONCLUSION

What has been said explains through a theological reading of Josemaría Escrivá's charism why he not only personally loved the academic enterprise, but founded and inspired several universities, as a consequence of fidelity to the charism God had entrusted to him. Just as God wanted to run the risk of our freedom, so He also runs the risk of our journey towards knowledge, an essential dimension of human life and, therefore, of Christian life. The perspective of creation in Christ lead Escrivá to embrace the attitude of the Fathers of the Church, who knew that only wonder knows.⁴⁰

But this corresponds to the very genealogy of the university institution which, in the proposed reconstruction, is the result of the Trinitarian reading of the question of the one and the many. The current crisis of this institution can, thus, be traced back to the loss of the relational matrix in the reading of the world, due to the modern individualist approach. Today's «light nihilism», according to a beautiful expression by Alejandro Llano, which has supplanted Nietzsche's heroic nihilism, multiplies the possibilities of choice, denying, however, *a priori*, that one choice can be given for which it is worth renouncing all others. The unity of life and knowledge thus become impossible, to the point of undermining the very identity of the person, who, without the Trinitarian foundation, risks falling back into the Greek mask, that etymologically was the origin of the term, or rather into the plurality of masks that would represent the parts of one's self, regardless of the unity of one's life and history.⁴¹

⁴⁰ GREGORY OF NYSSA, *In Canticum*, Gregorii Nysseni Opera VI, 358,12-359,4.

⁴¹ Cfr. A. LLANO, *Universidad y unidad de vida según san Josemaría Escrivá*, Documentos del Instituto de Antropología y Ética, 24, Pamplona 2002.

Instead, Prof. Tanzella-Nitti's academic journey demonstrates precisely how the charism that inspired it has made possible a relational unification of different academic perspectives, whereby the verbs *encounter*, *inhabit* and *share*, which *Veritatis Gaudium* refers to the relationship of the university enterprise to the Light of Christ, have become a reality, in the unity of knowledge and life.

THE CREATIVE AND REDEMPTIVE WORD

Benedict XVI's Theology of the Book of Nature

OSKARI JUURIKKALA

Pontifical University of the Holy Cross, Rome

ABSTRACT: The book of nature is among the most enduring theological metaphors. It has also been used extensively by recent Popes, from John Paul II to Francis. However, it has not been widely recognized that Pope Benedict XVI developed a wide-ranging and harmonious theology of the book of nature in a series of documents and discourses. In this article, I provide an analysis of the various ways in which Pope Benedict spoke about the book of nature, highlighting the various themes covered, including science and religion, the natural law, the liturgy, and the theology of religions. I also discuss the theological underpinnings of Pope Benedict's employment of the metaphor. I argue that, instead of seeing creation merely as the first stage of revelation, he thinks of the books of nature and Scripture developing in dialogue and finding their fullness in Christ.

KEYWORDS: Book of Creation, Book of Nature, Cosmic Liturgy, Fundamental Theology, Natural Contemplation, Natural Law, Natural Theology, Science and Religion, Theology of Religions.

RIASSUNTO: Il libro della natura è una delle metafore teologiche più durature. È stato utilizzato ampiamente anche dai Papi recenti, da Giovanni Paolo II a Francesco. Tuttavia, non è stato ancora riconosciuto come papa Benedetto XVI abbia sviluppato un'ampia ed armonica teologia del libro della natura in una nutrita serie di documenti e discorsi. In questo articolo intendo fornire un'analisi dei modi in cui papa Benedetto ha parlato del libro della natura, evidenziando i diversi temi trattati, tra cui il rapporto tra scienza e religione, la legge naturale, la liturgia e la teologia delle religioni. Discuto anche i fondamenti teologici dell'uso della metafora da parte di papa Benedetto. Sostengo che, invece di vedere la creazione solo come il primo stadio della Rivelazione, egli ritenga che il libro della natura e quello della Scrittura si sviluppino in dialogo e trovino la loro pienezza in Cristo.

PAROLE CHIAVE: Libro della Creazione, Libro della Natura, Liturgia cosmica, Teologia fondamentale, Contemplazione naturale, Legge naturale, Teologia naturale, Scienza e religione, Teologia delle religioni.

SUMMARY: I. *Introduction*. II. “*The Creator’s Calligraphy*”: *The Christmas Discourse to the Roman Curia* (2005). III. *The Creator Logos between Science and Faith: Discourses in Rome and Verona* (2006). IV. *The Evolutionary Universe as the Writing of the Book of Nature* (2008). V. *The “Symphony of the Creation”*: *Homily on the Epiphany* (2009). VI. *Integral Ecology: Caritas in Veritate* (2010). VII. *The Analogy of the Word: Verbum Domini* (2010). VIII. *Learning to Read the Book of Nature: Science, Contemplation, and Grace*. IX. *Beyond Proofs of God’s Existence*. X. *The Relational Dimension: The Logos ut Verbum*. XI. *The Natural Law and the Language of Being: The Bundestag Address* (2011). XII. *The Cosmic Liturgy: Gaudí and the Sagrada Família* (2010). XIII. *Religions and Christ: The Magi in the Infancy Narratives* (2012). XIV. *Conclusion*.

I. INTRODUCTION

The book of nature – the idea that the visible world is like another divine book alongside the Bible – is one of the most enduring metaphors in the history of theology.¹ It developed gradually during the patristic period, was consolidated in the Middle Ages, and continues to be used extensively during the modern period across different Christian confessions. In the early and mid-20th century, the book of nature was discussed, among others, by the great French theologians Jean Daniélou, Henri de Lubac, and Jean Mouroux.² Later, the metaphor has appeared in a variety of magisterial documents including John Paul II’s *Fides et Ratio* (1998) and Francis’ *Laudato si’*.³ It is mentioned twice in the Catechism of the Catholic Church, in relation to sacred art and prayer.⁴ In recent decades, the importance of the book of nature has been especially highlighted by theologians such as Alister McGrath and Giuseppe Tan-

¹ Cfr. A. VANDERJAGT, K. VAN BERKEL (eds.), *The Book of Nature in Antiquity and the Middle Ages*, Peeters, Leuven 2005; A. VANDERJAGT, K. VAN BERKEL (eds.), *The Book of Nature in Early Modern and Modern History*, Peeters, Leuven 2006; O. JUURIKALA, *The Patristic and Medieval Metaphor of the Book of Nature: Implications for Fundamental Theology* (Diss.), Pontifical University of the Holy Cross, 2020.

² Cfr. J. DANÉLOU, *God and the Ways of Knowing*, W. ROBERTS (trans.), Ignatius Press, San Francisco 2003, 18; H. DE LUBAC, *A Brief Catechesis on Nature and Grace*, R. ARNANDEZ (trans.), Ignatius Press, San Francisco 1984, 213; J. MOUROUX, *The Meaning of Man*, Image Books, Garden City 1961, chap. 2.

³ In addition to the documents of Benedict XVI cited later, cfr. JOHN PAUL II, Encyclical Letter *Fides et Ratio* (September 14, 1998), 19; FRANCIS, Encyclical Letter *Laudato si’* (May 24, 2015), 12, 85, 239.

⁴ Cfr. *Catechism of the Catholic Church*, 2500, 2705.

zella-Nitti.⁵ But what does the book of nature mean theologically? Few systematic discussions of the metaphor and its theological significance are available. I will argue that one of the most balanced and wide-ranging visions of the book of nature can be found in various documents and audiences of Pope Benedict XVI (2005-2013). I will start by analyzing in chronological order various discourses and homilies in which the idea appears, culminating in the Apostolic Exhortation *Verbum Domini* (2010). I will then address the question of how the book of nature can and should be read according to Benedict. His answer to the question is illustrated by the application of the metaphor in different contexts such as the knowledge of God's existence, the relational dimension of the Word, the natural law, liturgy, and the theology of religions.

II. "THE CREATOR'S CALLIGRAPHY": THE CHRISTMAS DISCOURSE TO THE ROMAN CURIA (2005)

The metaphor appears in a variety of contexts and under a variety of expressions in Benedict XVI's papal magisterium. The earliest instance is his 2005 Christmas discourse to the Roman Curia.⁶ This discourse is perhaps best remembered for the Pope's reflections on the hermeneutics of the Second Vatican Council, but they were preceded by reminiscences on the World Youth Day celebrated in Cologne. Commenting on its motto – "We have come to worship him" – Benedict notes this was an image of pilgrimage, and one dimension of this pilgrimage is the task of looking beyond one's own affairs:

⁵ Cfr. A.E. McGRATH, *The Reenchantment of Nature: The Denial of Religion and the Ecological Crisis*, Doubleday/Galilee, New York 2003, 41, 107-109, 162; IDEM, *The Open Secret: A New Vision for Natural Theology*, Blackwell, Oxford 2008, 147-155, 166-167; IDEM, *Re-Imagining Nature: The Promise of a Christian Natural Theology*, Wiley-Blackwell, Chichester 2017, 78-87, 155; IDEM, *Natural Philosophy: On Retrieving a Lost Disciplinary Imaginary*, Oxford University Press, Oxford 2023, 38-41, 71-87; G. TANZELLA-NITTI, *The Two Books prior to the Scientific Revolution*, «Annales Theologici» 18 (2004) 51-83; IDEM, *La metafora dei "due libri": un breve itinerario storico-teologico*, in *Teologia fondamentale in contesto scientifico*, 3: *Religione e rivelazione*, Città Nuova, Roma 2018, 360-394.

⁶ Cfr. BENEDICT XVI, *Address to the Roman Curia*, December 22, 2005, Italian original in AAS 98 (2006) 40-53. For the English translations of Benedict XVI, I have used the texts available on <https://www.vatican.va/> unless otherwise noted.

First of all, there was the invitation not to see the world that surrounds us solely as raw material with which we can do something, but to try to discover in it “the Creator’s handwriting”, the creative reason and the love from which the world was born and of which the universe speaks to us, if we pay attention, if our inner senses awaken and acquire perception of the deepest dimensions of reality.⁷

In this context, the Pope’s remarks do not go further, but already several details of this text are worth noting. First, it contrasts two different ways of relating to the material world: one, a possessive and exploitative attitude which views the world as “raw material” for doing something practical and useful; the other, a respectful but intellectually curious and spiritually open attitude that seeks to go beyond the mere materiality of the world. Second, instead of “handwriting,” the Italian original speaks of the Creator’s “calligraphy”, which implicitly underscores the *beauty* of creation. The created world is not merely embedded with traces of its maker, but those traces have a beautiful character. Third, the Pope suggests that there are two different dimensions present in the book of creation, namely God’s “creative reason” as well as his “love”; the world comes from both and “speaks to us” of both. Finally, the perception of God’s handwriting and voice in nature is not automatically perceptible to us but requires an interior transformation – a theme which we will return to in a moment.

III. THE CREATOR *LOGOS* BETWEEN SCIENCE AND FAITH: DISCOURSES IN ROME AND VERONA (2006)

Benedict XVI comes back to the topic of the book of nature more explicitly in two discourses in 2006. One is a response to a question by a high school student in a meeting with the youth of Rome and the Lazio region on Saint Peter’s Square, dated 6 April.⁸ The other is directed to the participants of the Fourth National Ecclesial Convention in Verona, which took place on 19 October.⁹ I will begin with the latter. It

⁷ *Ibidem*.

⁸ Cfr. BENEDICT XVI, *Meeting with the Youth of Rome and the Lazio Region in Preparation for the XXI World Youth Day*, April 6, 2006, Italian original in AAS 98 (2006) 355-356.

⁹ Cfr. BENEDICT XVI, *Address to the Participants of the Fourth National Ecclesial Convention*, Verona, October 19, 2006, Italian original in AAS 98 (2006) 804-815.

discusses the challenge of evangelization in today's world. Referring to the role of science and technology in the contemporary worldview, the Pope suggests that they should not be seen as self-contained activities but as something that point beyond themselves, which is the basis of their power:

Mathematics, as such, is a creation of our intelligence: the correspondence between its structures and the real structures of the universe—which is the pre-supposition of all modern scientific and technological developments, already expressly formulated by Galileo Galilei with the famous affirmation that the book of nature is written in mathematical language—arouses our admiration and raises a big question.¹⁰

In other words, when we think about the dynamics of science and technology, we should be led to reflect on the remarkable power of mathematics and the “real structures of the universe” which render science and technology possible. A sense of wonder is necessary on our part, so that we can recognize that the discovery of the mathematical language of the universe “raises a big question” concerning its origins. Benedict cites Galileo Galilei's (1564-1642) famous use of the metaphor of the book of nature, of which he developed a peculiar interpretation.¹¹ The Pope's reference to Galileo does not necessarily imply that he endorses the latter's overall vision.

In fact, Benedict goes on to propose a richer understanding of the metaphor rooted in the ancient Greek notion of *logos*. The intelligent structuring of the universe suggests a certain kind of “correspondence” between “our subjective reason and the objective reason in nature.”¹² This, in its turn, implies that there seems to be an “original intelligence” that is at the source of both, so that the reflection on the development of science brings us towards the creator *Logos*.” The Pope argues that this discovery enables us to respond to the tendency among some scientists to give primacy to “irrationality, chance and necessity”, and we can see how “our intelligence and our freedom” form part of the bigger picture in which a divine *Logos* is the foundation of both our interior experience

¹⁰ *Ibidem*.

¹¹ Cfr. A. SALUCCI, *La metafora del libro della natura in Galileo Galilei*, «Angelicum» 83 (2006) 327-375; G. TANZELLA-NITTI, *The Two Books prior to the Scientific Revolution*, 74-76.

¹² BENEDICT XVI, *Address to the Participants of the Fourth National Ecclesial Convention*.

and the success of science and technology. What is at stake is the enlarging of our rationality, so that it is open to “questions of the truth and the good”. Indeed, science, philosophy, and theology can respect each other in their “reciprocal autonomy” when we are aware of “the intrinsic unity that holds them together.”¹³

In the earlier encounter with the youth of Rome in April 2006, Benedict XVI answers a question concerning science and faith along similar lines. He refers to Galileo who “said that God wrote the book of nature in the form of the language of mathematics. He was convinced that God has given us two books: the book of Sacred Scripture and the book of nature. And the language of nature – this was his conviction – is mathematics, so it is a language of God, a language of the Creator.”¹⁴ And the Pope invites the listeners to reflect a bit more on the power of mathematics and its “incredible” coincidence with “the structure of the universe”.¹⁵ It seems there must be an “antecedent reason” that accounts for both, so that our subjective rationality is able to discover “the reliable and intelligent structure of matter.”¹⁶ The wordings of the two discourses differ in their details, but the overall structure is so similar that one almost suspects that the earlier Roman text was used as a draft for the later Verona discourse.

Benedict XVI’s emphasis on the divine *Logos* – and not merely mathematics taken in isolation – as the foundation for the book of nature is in direct continuity with the Greek Fathers as well as the thought of Saint Augustine.¹⁷ The Greek notion of *logos* is in fact central to Joseph Ratzinger’s and Pope Benedict’s theological thought as a whole.¹⁸ Another significant

¹³ *Ibidem*.

¹⁴ BENEDICT XVI, *Meeting with the Youth of Rome*.

¹⁵ *Ibidem*.

¹⁶ *Ibidem*.

¹⁷ Cfr. JUURIKKALA, *The Patristic and Medieval Metaphor of the Book of Nature*, 32-44, 290-291; IDEM, *The Two Books of God: The Metaphor of the Book of Nature in Augustine*, «Augustinianum» 61/2 (2021) 495-497. On the patristic assimilation and transformation of the philosophical notion of *logos*, cfr. W.V. DE BEER, *The Cosmic Role of the Logos, as Conceived from Heraclitus until Eriugena*, «Philosophy and Theology» 27/1 (2015) 324; K. CLARKE, *Words in the Word: Maximus on Christ the Creator*, «Saint Anselm Journal» 19/1 (2023) 57-81.

¹⁸ Cfr. P. BLANCO SARTO, *Logos: Joseph Ratzinger y la historia de una palabra*, «Límite. Revista de Filosofía y Psicología», 1/14 (2006) 57-86. Important references in Ratzinger/Benedict include J. RATZINGER, *Introduction to Christianity*, Ignatius Press, San Francis-

text in this respect is his 2006 discourse to the Congregation for the Doctrine of the Faith, which discusses the new challenges for the faith brought about by the development of knowledge.¹⁹ In this discourse, the Pope argues that the key to avoiding any perception of “competition” between faith and reason is that “Jesus Christ is indeed the Lord of all creation and of all history” through whom and for whom “all things were created”, and in whom they “hold together” (Col 1:16-17).²⁰ As a consequence, Christians should make “a serious evangelizing effort” with respect to “scientific and philosophical discoveries”, pointing out that “the whole of creation is an immense invitation” and that it points beyond itself to “the great response that [human reason] has always sought and awaited.”²¹ Thus, the book of nature is a context for an ongoing dialogue between God and man.

IV. THE EVOLUTIONARY UNIVERSE AS THE WRITING OF THE BOOK OF NATURE (2008)

Pope Benedict returns to the book of nature in the dialogue of science and faith in his 2008 address to the members of the Pontifical Academy of Sciences.²² The topic of their plenary assembly was *Scientific Insight into the Evolution of the Universe and of Life*. The Pope begins his discourse synthesizing some ideas from Thomas Aquinas to the effect that “the notion of creation must transcend the horizontal origin of the unfolding of events, which is history” and that creation “is instead the foundational and continuing relationship that links the creature to the Creator.” He then suggests that the language of evolution is related to the metaphor of the book: “To ‘evolve’ literally means ‘to unroll a scroll’, that is, to read a book. The imagery of nature as a book has its roots in Christianity and has been held dear by many scientists.”²³

co 1990, 94-113; IDEM, *Truth and Tolerance: Christian Belief and World Religions*, Ignatius Press, San Francisco 2003, 162-183; BENEDICT XVI, *Faith, Reason and the University: Memories and Reflections* (Regensburg, September 12, 2006).

¹⁹ Cfr. BENEDICT XVI, *Address to the Plenary Assembly of the Congregation for the Doctrine of the Faith*, February 10, 2006, Italian original in AAS 98 (2006) 254-257.

²⁰ *Ibidem*.

²¹ *Ibidem*.

²² Cfr. BENEDICT XVI, *Address to Members of the Pontifical Academy of Sciences*, October 31, 2008.

²³ *Ibidem*.

Hence, the evolutionary history of nature is like the writing process of this “book whose author is God in the same way that Scripture has God as its author”: “It is a book whose history, whose evolution, whose “writing” and meaning, we “read” according to the different approaches of the sciences, while all the time presupposing the foundational presence of the author who has wished to reveal himself therein.”²⁴ The advantage of this metaphor is that it enables us to perceive the science of evolution in a wider context, which is rooted in the divine intelligence and purpose:

This image also helps us to understand that the world, far from originating out of chaos, resembles an ordered book; it is a cosmos. Notwithstanding elements of the irrational, chaotic and the destructive in the long processes of change in the cosmos, matter as such is “legible”. It has an inbuilt “mathematics”. The human mind therefore can engage not only in a “cosmography” studying measurable phenomena but also in a “cosmology” discerning the visible inner logic of the cosmos.²⁵

The Pope notes that we do not always see “the harmony both of the whole and of the relations of the individual parts, or their relationship to the whole.” But within the individual events and processes, there is intelligibility and “an order of evident correspondences and undeniable finalities” between the various dimensions of the cosmos, which provides the foundation for “humanity’s place in the cosmos”. Importantly, the gradual discovery of these various orders requires both “experimental and philosophical inquiry”.²⁶

One might of course ask whether it is appropriate to describe the evolutionary universe in straightforward terms as harmonious. In recent years, there has been a growing awareness of the theological relevance of nonhuman suffering as part of evolutionary processes before the Fall.²⁷ As a consequence, some people might think that the book of nature is a rather too neat metaphor for the evolutionary universe.

²⁴ *Ibidem.*

²⁵ *Ibidem.*

²⁶ *Ibidem.*

²⁷ Cfr. J.R. SCHNEIDER, *Animal Suffering and the Darwinian Problem of Evil*, Cambridge University Press, Cambridge 2020; B.N. SOLLEREDER, *God, Evolution, and Animal Suffering: Theodicy without a Fall*, Routledge, London-New York 2019.

However, in his Pontifical Academy of Sciences, the Pope is at least implicitly acknowledging this dimension of the picture when he speaks, above, of “elements of the irrational, chaotic and the destructive in the long processes of change in the cosmos”.

V. THE “SYMPHONY OF THE CREATION”: HOMILY ON THE EPIPHANY (2009)

Benedict XVI develops the metaphor in a slightly different direction in his 2009 homily on the solemnity of the Epiphany.²⁸ Taking the cue from the account of the Magi from the East in Matthew 2:1-12, he reflects on the relationship between ancient astronomy and Christ. This provides him with an occasion to reflect on the book of nature, because “Christian thought compares the cosmos to a ‘book’ – the same Galileo said this as well – considering it as the work of an Author who expresses himself in the ‘symphony’ of the Creation.”²⁹ The Pope goes on to develop this idea of a cosmic symphony as follows, suggesting that the Incarnation is a solo that transforms the symphony and ushers in a new cosmic age:

In this symphony is found, at a certain point, what might be called in musical terminology a “solo”, a theme given to a single instrument or voice; and it is so important that the significance of the entire work depends on it. This “solo” is Jesus, who is accompanied by a royal sign: the appearance of a new star in the firmament. Jesus is compared by ancient Christian writers to a new sun. According to current astrophysical knowledge, we should compare it with a star that is even more central, not only for the solar system but also for the entire known universe.³⁰

The Pope’s use of the metaphor in this text is intriguing for several reasons. He connects the *book* metaphor to the *musical* metaphor of the symphony, so that the book of nature is almost compared to a partiture performed by all the creatures. At the same time, he seems to suggest that the book or symphony of creation is longing for a fullness that is provided by the novelty of the Incarnation.

²⁸ Cfr. BENEDICT XVI, *Homily on the Solemnity of the Epiphany of the Lord*, January 6, 2009, Italian original in *Insegnamenti di Benedetto XVI*, 5/1, LEV, Città del Vaticano 2009, 17-21.

²⁹ *Ibidem*.

³⁰ *Ibidem*.

This novelty – this “solo” of Jesus – is not entirely foreign to creation, the Pope goes on to say. The basis for Jesus’ coming into the world was provided by the “mysterious design” of nature, “which led to the appearance of the human being as the crowning of Creation’s elements” (an allusion to Genesis 2:7, perhaps with an evolutionary twist).³¹ Christ unites “earth and Heaven, the Creation and the Creator, the flesh and the Spirit”, being “the centre of the cosmos and of history”, so that “in him the Author and his work are united without being confused with each other.”³² The book of nature is brought to its fulfilment in Christ’s Sacred Humanity, which is the basis for the transformation of the entire cosmos.

VI. INTEGRAL ECOLOGY: *CARITAS IN VERITATE* (2010)

The metaphor is used in an ecological context in the Encyclical Letter *Caritas in Veritate* (2010).³³ The general theme of the encyclical is integral human development in love (*caritas*) and truth. The Pope refers to the book of nature while arguing that “the way humanity treats the environment influences the way it treats itself, and vice versa.”³⁴ He points out that the Church “has a responsibility towards creation” as well as towards “human ecology”.³⁵ These go hand in hand because “the book of nature is one and indivisible” – it covers nature in the sense of the environment “but also life, sexuality, marriage, the family, social relations: in a word, integral human development.”³⁶

Benedict does not elaborate on the metaphor here, and one almost wonders why the book metaphor is employed. The implication, in any case, seems to be that the book of nature is not only something to be read; it is also something that must be taken care of. Like old manuscripts of the Bible, so the book of creation is in some sense in the hands of the Church and humanity. The communication of God’s

³¹ *Ibidem.*

³² *Ibidem.*

³³ Cfr. BENEDICT XVI, Encyclical Letter *Caritas in Veritate* (June 29, 2009), 51. Latin original in AAS 101 (2009) 641-709.

³⁴ *Ibidem*, (emphasis removed).

³⁵ *Ibidem*, (emphasis removed).

³⁶ *Ibidem.*

wisdom and salvific will suffers when these instruments or channels of communications are damaged. The Pope specifically cites life, sexuality, marriage, the family and social relations: they all play a special role in revealing something about God's plan and even of his trinitarian nature in whose image humanity has been created.

VII. THE ANALOGY OF THE WORD: *VERBUM DOMINI* (2010)

The centrality of the divine *Logos* receives a more systematic expression in Pope Benedict's Apostolic Exhortation *Verbum Domini* (2010).³⁷ In a crucial part of the text, Benedict XVI reflects on the analogy of the Word of God.³⁸ Christian reflection on the divine Word has always found inspiration in the Johannine Prologue, which speaks of the multiple dimensions of the divine *Logos*: it is eternal and consubstantial with God, but it has also become "flesh" (Jn 1:14). The analogous uses of this notion give rise to "a symphony of the word, to a single word expressed in multiple ways," which together produce "a polyphonic hymn".³⁹

According to *Verbum Domini*, it is precisely this analogy of the Word that enables us to speak of the cosmic dimension of the Word:

While the Christ event is at the heart of divine revelation, we also need to realize that creation itself, the *liber naturae*, is an essential part of this symphony of many voices in which the one word is spoken. We also profess our faith that God has spoken his word in salvation history; he has made his voice heard; by the power of his Spirit "he has spoken through the prophets". God's word is thus spoken throughout the history of salvation, and most fully in the mystery of the incarnation, death and resurrection of the Son of God.⁴⁰

In other words, the book of nature is part of a larger symphony that finds its culmination in Christ. As Benedict stresses in what follows, this is God's original plan: everything has been created through and for the divine *Logos* (citing Jn 1:3,15-16 and Col 1:16): "Creation is born of the *Logos* and indelibly bears the mark of the *creative Reason which orders*

³⁷ Cfr. BENEDICT XVI, Apostolic Exhortation *Verbum Domini*, September 30, 2010, Latin original in AAS 102 (2010) 681-787.

³⁸ Cfr. *ibidem*, 7.

³⁹ *Ibidem*.

⁴⁰ *Ibidem*.

and directs it".⁴¹ The Pope points out that this idea is already implicit in a number of Old Testament texts such as Psalm 33, which sings "with joy-filled certainty" that "by the word of the Lord the heavens were made, and all their host by the breath of his mouth" (Ps 33:6) and "he spoke, and it came to be; he commanded, and it stood forth" (Ps 33:9).⁴² Citing Psalm 19's magnificent opening ("The heavens are telling the glory of God; and the firmament proclaims his handiwork"), Benedict affirms that "all reality expresses this mystery", which is why "sacred Scripture itself invites us to acknowledge the Creator by contemplating his creation (cf. Wis 13:5; Rom 1:19-20)."⁴³

The Pope goes on to note that Saint Bonaventure (1221-1274), "who in the great tradition of the Greek Fathers sees all the possibilities of creation present in the *Logos*, states that 'every creature is a word of God, since it proclaims God'."⁴⁴ Vatican II's *Dei Verbum* is also cited in this respect, stating that "God, who creates and conserves all things by his word (cf. Jn 1:3), provides constant evidence of himself in created realities".⁴⁵ A bit later, Galileo is mentioned once more: "we can contemplate the profound unity in Christ between creation, the new creation and all salvation history. To use an example, we can compare the cosmos to a 'book'—Galileo himself used this example".⁴⁶

The exposition of the theme in *Verbum Domini* recruits a wide variety of sources and perspectives to the cause. This may somewhat obscure an important feature of Benedict XVI's use of the metaphor both here and in the Epiphany homily. Instead of referring to God's Two Books (nature and Scripture), which became the standard framework in the modern period, the Pope is thinking of a more complex and dynamic

⁴¹ *Ibidem*, 8.

⁴² *Ibidem*.

⁴³ *Ibidem*.

⁴⁴ *Ibidem*. The document refers to *Itinerarium mentis in Deum*, II, 12. On the book of nature in Bonaventure, cfr. JUURIKALA, *The Patristic and Medieval Metaphor of the Book of Nature*, 249-273; W. RAUCH, *Das Buch Gottes: Eine systematische Untersuchung des Buchbegriffes bei Bonaventura*, Max Hueber Verlag, München 1961.

⁴⁵ VATICAN COUNCIL II, Dogmatic Constitution on Divine Revelation *Dei Verbum* (November 18, 1965), 3.

⁴⁶ BENEDICT XVI, *Verbum Domini*, 13.

whole. There is first of all the voice of the Word in the book of nature; then the communication of the Word in salvation history – particularly in the prophetic Word; and finally, there is the *fullness* of this communication in the Incarnation.

The theme of the Two Books is there, but the picture is fundamentally that of the book of creation and the Old Testament preparing together for the coming of Christ and finding mutually their fulfilment in him. The book of nature is not merely an earlier phase of God's revelation. It is an enduring voice that is in constant dialogue with the prophetic Word throughout the Old Testament.⁴⁷ Further, in Christ, it is taken up and transformed by the very reality of the Incarnation and the paschal mystery. Although Benedict only cites the medieval Bonaventure, the framework he employs is ultimately a patristic one, at least hinted at by Origen and developed particularly by Saint Maximus the Confessor.⁴⁸

VIII. LEARNING TO READ THE BOOK OF NATURE: SCIENCE, CONTEMPLATION, AND GRACE

A major question concerning the book of nature is how it should be read. If it is not written in ordinary human language, what language is it and how can one learn it? John Paul II had alluded to this challenge in *Fides et Ratio*, which invited us “to recognize as a first stage of divine Revelation the marvellous ‘book of nature’, which, when read with the proper tools of human reason, can lead to knowledge of the Creator.”⁴⁹ But what are these proper tools of human reason? Is mathematics one of such tools, as Galileo had argued?

Pope Benedict's vision of the book of nature certainly includes the idea that the natural sciences play a role in its reading. As we saw earlier, the Pope has invoked the metaphor most frequently in relation to the relationship of science and theology. He returns to this theme, for

⁴⁷ Cfr. G. TANZELLA-NITTI, *La Rivelazione e la sua credibilità: Percorso di Teologia Fondamentale*, Edusc, Roma 2016, 115-120.

⁴⁸ Cfr. H. DE LUBAC, *History and Spirit: The Understanding of Scripture according to Origen*, A. ENGLUND NASH (trans.), Ignatius Press, San Francisco 2007, chap. 8; O. JUURIKKALA, *The Patristic and Medieval Metaphor of the Book of Nature*, 78-94, 172-192.

⁴⁹ JOHN PAUL II, *Fides et Ratio*, 19.

example, in his 2010 general audience on St Albert the Great.⁵⁰ He presents the great Dominican as an example of how “a man of faith and prayer [...] can serenely foster the study of the natural sciences” because it also “contributes to fostering thirst for and love of God.” This is because Scripture “speaks to us of creation as of the first language through which God who is supreme intelligence, who is the *Logos* reveals to us something of himself.” In consequence, “one can compare the natural world to a book written by God that we read according to the different approaches of the sciences.”⁵¹ The Pope points to St Albert as a reminder of the “friendship between science and faith”, showing that dedicating themselves to the study of nature in the spirit of faith, “scientists can take an authentic and fascinating path of holiness.”⁵²

However, neither John Paul II nor Benedict XVI thought that scientific learning is all that one needs to decipher the book of nature. *Fides et Ratio* suggests that it is not only a question of rational tools: “If human beings with their intelligence fail to recognize God as Creator of all, it is not because they lack the means to do so, but because their free will and their sinfulness place an impediment in the way.”⁵³

Benedict XVI’s texts provide at least two further suggestions. First, he gives more details on the interior conditions of reading the book of nature. In the 2005 discourse to the Roman Curia, Benedict speaks of an interior attitude of detachment, a disinterested attention to something that is not merely useful. In particular, he submits that “our inner senses” need to be awakened (implying that they are a dimension of our being that is often dormant, so to speak). Only in this way will we “acquire perception of the deepest dimensions of reality.”⁵⁴

This description of an interior attitude that enables us to discover the deeper dimensions of reality is a powerful synthesis of what the patristic and medieval tradition understands as natural contemplation or the contemplation of nature (*theoria physike*).⁵⁵ Contemplation is not

⁵⁰ Cfr. BENEDICT XVI, *General Audience*, March 24, 2010.

⁵¹ *Ibidem*.

⁵² *Ibidem*.

⁵³ JOHN PAUL II, *Fides et Ratio*, 19.

⁵⁴ BENEDICT XVI, *Address to the Roman Curia*.

⁵⁵ Cfr. J. LOLLAR, *To See into the Life of Things: The Contemplation of Nature in Maximus the*

principally an intellectual tool, but an interior transformation which is relevant also to the reading of Scripture as God's Word as well as the meditation on the Sacred Humanity of Christ. Indeed, the patristic period associated the book of nature with the contemplation of nature.⁵⁶ A closely related theme, highlighted by *Verbum Domini*, is the importance of the Holy Spirit for understanding the word of God.⁵⁷

In a 2013 general audience, Benedict highlights something obvious but potentially neglected, namely that the interior help of grace is always needed.⁵⁸ In the first audience of a cycle commenting on the *Creed*, he begins by speaking of the very first verse of Scripture (Gen 1:1). He then links it to the Hebrews 11:3 statement that it is "by faith" that "we understand that the world was created by the word of God, so that what is seen was made out of things which do not appear." This divine gift is necessary so that we may learn to see and read nature as a divine communication: "Faith thus implies the ability to recognize the invisible, by identifying its traces in the visible world. Believers can read the great book of nature and understand its language (cf. Ps 19:2-5)."⁵⁹

In the same audience, Pope Benedict hints towards another central and traditional principle for reading creation, which is that the book of nature and the book of Scripture complement and illuminate each other: "the word of revelation that awakens faith is necessary if man is to become fully aware of the reality of God as Creator and Father."⁶⁰ We saw this also in various earlier texts earlier: the book of nature is in some way analogous to the prophetic Word of the Old Testament; both can be enigmatic and mysterious until they are considered in relation to

Confessor and His Predecessors, Brepols, Turnhout 2013; J. PAFFHAUSEN, *Natural Contemplation in St. Maximus the Confessor and St. Isaac the Syrian*, in J. CHRYSAVGIS, B.V. FOLTZ (eds.), *Toward an Ecology of Transfiguration: Orthodox Christian Perspectives on Environment, Nature, and Creation*, Fordham University Press, New York 2013, 46-58.

⁵⁶ Cfr. P.M. BLOWERS, *Drama of the Divine Economy: Creator and Creation in Early Christian Theology and Piety*, Oxford University Press, Oxford 2012, 316-335; O. JUURIKKALA, *The Patristic and Medieval Metaphor of the Book of Nature*, 38-44.

⁵⁷ Cfr. BENEDICT XVI, *Verbum Domini*, 15-16.

⁵⁸ Cfr. BENEDICT XVI, *General Audience*, February 6, 2013.

⁵⁹ *Ibidem*.

⁶⁰ *Ibidem*.

the Incarnate Word. If this is true, then the dynamism of promise and fulfilment, and preparation and fullness, can be applied to both the Old Testament and the book of nature.

This framework may be related to the suggestion we saw earlier about the evolutionary history of the universe as the unfolding of a scroll. If the book of nature is compared to the prophetic word of the Old Testament, then we would expect it to be incomplete on its own. This is an important consideration when we think about the problem of nonhuman suffering in natural history. The challenge is not so much to explain it by itself, but to ask how it might relate to the mystery of Christ.⁶¹

IX. BEYOND PROOFS OF GOD'S EXISTENCE

What does the book of nature say, then? We have already seen some suggestions, but in the following sections, I will explore several further themes present in Benedict XVI's texts on the book of nature. A classical theme is that, through creation, one can arrive at some knowledge of the Creator.⁶² This idea of the book of nature as a first stage of revelation, which provides a preamble to the faith, is only briefly mentioned in Benedict XVI's teaching.⁶³ The principal interest seems to lie elsewhere: in line with patristic and medieval thinkers, Benedict seems more interested in how the mystery of Christ illuminates the book of nature.

For example, in his response to the Roman high school student in 2006, the Pope recognizes that what he is suggesting concerning the correspondence between objective and subjective rationality is not a question of strict demonstration: "no one can now prove [...] that they both really originated in a single intelligence"; however, when one contemplates the picture as a whole, "this unity of intelligence, behind the two intelligences, really appears in our world. And the more we can delve into the world with our intelligence, the more clearly the plan of Creation appears."⁶⁴ In other words, when one contemplates the whole

⁶¹ Cfr. SOLLEREDER, *God, Evolution, and Animal Suffering*, 175-178.

⁶² Cfr. JOHN PAUL II, *Fides et Ratio*, 19; Wis 13:5; Rom 1:20.

⁶³ Cfr. BENEDICT XVI, *Verbum Domini*, 8.

⁶⁴ BENEDICT XVI, *Meeting with the Youth of Rome*.

picture with an open attitude and potentially with the help of God's grace, different elements find their place. This sense of the whole is a crucial part of the credibility of Christian revelation.

Benedict then goes on to note that what is at stake is something greater than intellectual arguments. He invites the student and his other listeners to consider the fact that there are really "only two options", because "God exists or he does not exist."⁶⁵ We are speaking of existential choices. Each option has its consequences; in the negative case, "everything that functions on our earth and in our lives would be only accidental, marginal, an irrational result – reason would be a product of irrationality." One cannot "prove" either alternative, but if God exists, everything changes. For one thing, "the great option of Christianity is the option for rationality and for the priority of reason." This is "an excellent option" because "behind everything is a great Intelligence to which we can entrust ourselves." Moreover, something great is revealed to us in Christ, namely "God, who was made flesh and shows us that he is not only a mathematical reason but that this original Reason is also Love." Therefore, the option proposed by Christianity is "the most rational and the most human" because it allows us to build our lives "on this trust that the creating Reason is love and that this love is God."⁶⁶

X. THE RELATIONAL DIMENSION: THE *LOGOS UT VERBUM*

Implicit in the foregoing discourse is the relationship with God. Like the notion of the *logos*, this relational dimension is central to Benedict XVI's theological project as a whole. It is also central to the book metaphor. Nature can only be meaningfully compared to a book if the rationality that penetrates the natural world is not only a *logos ut ratio* but also a *logos ut verbum* – that is, it is not only an intelligence but also a word, a communication, a message that *someone* has addressed to someone else.⁶⁷

⁶⁵ *Ibidem.*

⁶⁶ *Ibidem.*

⁶⁷ Cfr. G. TANZELLA-NITTI, *La dimensione apologetica della Teologia fondamentale: Una riflessione sul ruolo dei Praeambula fidei*, «Annales Theologici» 21 (2007) 49-51; IDEM, *Filosofia e rivelazione: Attese della ragione, sorprese dell'annuncio cristiano*, San Paolo, Cinisello Balsamo 2008, 83-91.

Joseph Ratzinger noted this dynamism of the *logos* already in his *Introduction to Christianity* (1968). Reflecting on the doctrine of the Trinity and its implicit elevation of the category of relation, he argued that the Church's trinitarian faith produced a subtle revolution in the Christian vision of reality and also of philosophical categories.⁶⁸ Through the revelation of the Trinity, humanity gained an "experience of the God who conducts a dialogue, of the God who is not only *logos* but also *dia-logos*, not only idea and meaning but speech and word in the reciprocal exchanges of partners in conversation".⁶⁹

But this also changed the way the concept of *logos* was perceived. When John applied it to Jesus of Nazareth, it acquired a new dimension: "It no longer denotes simply the permeation of all being by meaning; it characterizes this man: he who is here is 'Word'."⁷⁰ The Greek emphasis on "meaning" (*ratio*) gave way to a new emphasis on "word" (*verbum*): "He who is here is Word; he is consequently 'spoken' and, hence, the pure relation between the speaker and the spoken to. Thus *logos* Christology, as 'word' theology, is once again the opening up of being to the idea of relationship."⁷¹

XI. THE NATURAL LAW AND THE LANGUAGE OF BEING:

THE BUNDESTAG ADDRESS (2011)

In his 2011 address to the German Bundestag, Benedict XVI applies the idea of the book of nature to the question of natural law.⁷² In this address, the Pope points out that the Christian view of the state and society has never been strictly derived from Scripture, because "it has

⁶⁸ Cfr. J. RATZINGER, *Introduction to Christianity*, 180-190; G. MASPERO, *Ratzinger's Trinitarian Ontology and Its Patristic Roots: The Breakthrough of Introduction to Christianity*, «Wrocław Theological Review» 31 (2023) 5-33.

⁶⁹ RATZINGER, *Introduction to Christianity*, 183.

⁷⁰ *Ibidem*, 189.

⁷¹ *Ibidem*.

⁷² BENEDICT XVI, *Address to the Bundestag*, September 22, 2011, German original AAS 103 (2011) 663-669. For an analysis, cfr. M. RHONHEIMER, *The Secular State, Democracy, and Natural Law: Benedict XVI's Address to the Bundestag from the Perspective of Legal Ethics and Democracy Theory*, in M. CARTABIA, A. SIMONCINI (eds.), *Pope Benedict XVI's Legal Thought: A Dialogue on the Foundation of Law*, Cambridge University Press, Cambridge 2015, 79-92.

pointed to nature and reason as the true sources of law—and to the harmony of objective and subjective reason, which naturally presupposes that both spheres are rooted in the creative reason of God.”⁷³ This understanding of the creative *Logos* as present in all creatures is, the Pope argues, the underlying motive of the Pauline statement in Romans 2:14–15, the *locus classicus* for a biblical notion of the natural law: “When Gentiles who have not the Law [the Torah of Israel] do by nature what the law requires, they are a law to themselves [...] they show that what the law requires is written on their hearts, while their conscience also bears witness.”

The Pope sees this as an illustration of a general principle, namely that “Christian theologians aligned themselves against the religious law associated with polytheism and on the side of philosophy, and that they acknowledged reason and nature in their interrelation as the universally valid source of law.” Paul’s text thus combines “the two fundamental concepts of nature and conscience, where conscience is nothing other than Solomon’s listening heart, reason that is open to the language of being.”⁷⁴

Reason open to the language of being – in a sense, this is another way of putting the idea that the book of nature has a moral dimension, which the notion of the natural law tries to capture in words. The Pope thus seeks to address a concern raised by Hans Kelsen, the great legal positivist, according to whom nature could only contain norms if a will had somehow put them there; but this presupposes “a Creator God, whose will had entered into nature” – an idea that it is “utterly futile” to discuss. But Benedict retorts: “Is it really? – I find myself asking. Is it really pointless to wonder whether the objective reason that manifests itself in nature does not presuppose a creative reason, a *Creator Spiritus*?”⁷⁵ That, after all, is the whole point of the reflection on the book of nature. The discovery of an objective moral law is intimately related to the discovery of the objective *logos* embedded in nature.

This is not to say that the former must be directly derived from the latter. In an insightful discussion of Benedict’s Bundestag address,

⁷³ BENEDICT XVI, *Address to the Bundestag*.

⁷⁴ *Ibidem*.

⁷⁵ *Ibidem*.

Martin Rhonheimer has noted that the Pope's use of the word 'nature' "remains unclear and underdetermined with respect to its relevance for moral reason."⁷⁶ The problem is that "the natural law, according to the tradition, is not simply a law that 'nature' reveals to us in some unambiguous way. Instead, it is always and only an 'ordering of *reason*' (*rationis ordinatio*)", which means that "it cannot simply be read from the Book of Nature; 'nature' as such is not yet a moral or legal norm."⁷⁷

This is an important observation, but I believe it is entirely compatible with Benedict's intention. He points precisely to the foundations of such an order of the *logos* in the wider language of being that we discover through the contemplation of the book of nature. The moral dimension of that book can only be penetrated through carefully reflecting on the specific nature of human beings both in themselves and in their relationship with the wider creation as well as their Creator. The Pope seems right in suggesting that the modern crisis of natural law ethics reflects a more general challenge, which is the loss of the intuition that the moral quest of human beings is inseparable from the attitude of openness and listening to a language of being that is both a gift and a call.

XII. THE COSMIC LITURGY: GAUDÍ AND THE SAGRADA FAMILIA (2010)

In *Laudato si'*, Pope Francis highlights the importance of the book of nature for the understanding of the Church's liturgy and sacraments.⁷⁸ The idea is in some respects as old as the liturgy itself. In modern times it has been developed in a special way by the Catalan architect Antoni Gaudí i Cornet (1852-1926), who frequently referred to the book of nature as a principal source of inspiration for his art. For example, he is said to have stated that "everything comes from the great book of nature, the works of men are like a printed book", and that "the great book, which is always open and which we have to make an effort to read, is that of Nature, and other books are taken from it".⁷⁹ These

⁷⁶ M. RHONHEIMER, *The Secular State, Democracy, and Natural Law*, 88.

⁷⁷ *Ibidem*.

⁷⁸ Cfr. FRANCIS, *Laudato si'*, 235-237.

⁷⁹ There are various statements like this attributed to Gaudí, but the only writings left by him were one published article and a few letters; the rest has been remembered and transmitted by his disciples. For a study of this aspect of Gaudí's architecture, cfr. J.

expressions were not a mere figure of speech for Gaudí, but reflected his deep theological vision of art. According to one disciple and expert on his life and work, Gaudí considered himself as a “copyist” of God, transferring solutions discovered in nature to architecture.⁸⁰

Benedict XVI was aware of this spirit of Gaudí and employed it as a central theme of his 2010 homily at the dedication of the Sagrada Família.⁸¹ He spoke of the complementarity of and interaction between the *three* books of nature, of Scripture, and of the liturgy:

In this place, Gaudí desired to unify that inspiration which came to him from the three books which nourished him as a man, as a believer and as an architect: the book of nature, the book of sacred Scripture and the book of the liturgy. In this way he brought together the reality of the world and the history of salvation, as recounted in the Bible and made present in the liturgy.⁸²

In Benedict’s interpretation, Gaudí’s architecture puts the three books in creative dialogue. As one student of Gaudí points out, he always called nature “my teacher”⁸³ and stated that “originality consists in returning to the origins.”⁸⁴ However, he did not mean that the task of copying the book of nature or returning to the origins is merely one of conservation; created in God’s image, man is a created co-creator that imitates and continues God’s work of creation in his creativity, collaborating in the bringing to light the original beauty which is the splendor of truth present in all creatures.⁸⁵

As Benedict puts it in his homily, the Sagrada Família “stands as a visible sign of the invisible God, to whose glory these spires rise like arrows pointing towards absolute light and to the One who is Light,

BASSEGODA NONELL, G. GARCÍA GABARRÓ, *La c tedra de Antoni Gaud : Estudio anal tico de su obra*, Edicions UPC, Barcelona 1999, 43-48.

⁸⁰ J. BASSEGODA NONELL, *Gaud : L’architettura dello spirito*, Ares, Milano 2009, 202.

⁸¹ Cf. BENEDICT XVI, *Homily During Holy Mass with Dedication of the Church of the Sagrada F milia and of the Altar*, Barcelona, November 7, 2010, Spanish original AAS 102 (2010) 883-887.

⁸² *Ibidem*.

⁸³ J. BERG S MASS , M. LLIMARGAS, J. BASSEGODA NONELL, M.A. CRIPPA, *Gaud , el hombre y la obra*, Lunwerg, Barcelona 1999, 23.

⁸⁴ *Ibidem*, 34.

⁸⁵ *Ibidem*.

Height and Beauty itself.”⁸⁶ This *trialogue* between nature, Scripture and liturgy is part of God’s original design, which Gaudí put to action when he “made stones, trees and human life part of the church so that all creation might come together in praise of God”; thus, “he brilliantly helped to build our human consciousness, anchored in the world yet open to God, enlightened and sanctified by Christ.” According to the Pope, Gaudí’s work corresponds to “one of the most important tasks of our times” – that of “living in this temporal world and being open to eternal life” and of finding harmony “between the beauty of things and God as beauty.” Thus, in the “masterpiece” of the Sagrada Familia, “Gaudí shows us that God is the true measure of man; that the secret of authentic originality consists, as he himself said, in returning to one’s origin which is God.”⁸⁷

The idea is simple but of great importance. Jean Mouroux notes in his reflections on the book of nature that we cannot merely contemplate creation; we must also *consecrate* it to God.⁸⁸ We must offer the natural world to God, for otherwise we risk turning nature into an idol and adoring creation instead of God. Like the book of Scripture, the book of nature must find fullness in the celebration of the Eucharist. Ratzinger notes similarly in his *Spirit of the Liturgy*, commenting on Teilhard de Chardin’s cosmic vision: “the transubstantiated Host is the anticipation of the transformation and divinization of matter in the christological ‘fullness’”; thus, “the Eucharist provides the movement of the cosmos with its direction; it anticipates its goal and at the same time urges it on.”⁸⁹

This is how Pope Benedict framed it during his flight to Spain for the dedication of the Sagrada Familia: “Gaudí wanted this trinominal: a book of nature, a book of Scripture, a book of the Liturgy.”⁹⁰ This vision affects our understanding of them all:

⁸⁶ BENEDICT XVI, *Dedication of the Sagrada Familia*.

⁸⁷ *Ibidem*.

⁸⁸ J. MOUROUX, *The Meaning of Man*, 44-46.

⁸⁹ J. RATZINGER, *The Spirit of the Liturgy*, Ignatius Press, San Francisco 2000, 29.

⁹⁰ BENEDICT XVI, *Interview with the Journalists During the Flight to Spain*, November 6, 2010.

In the Liturgy, Scripture becomes present, it becomes a reality today. It is no longer a Scripture of 2,000 years ago, but should be celebrated and brought into being. And in the celebration of Scripture creation speaks, creation speaks and finds its true response because, as St Paul tells us, the creature suffers and instead of being destroyed and despised, it waits for the children of God, that is, those who see it in God's light. And so – I think – this synthesis between the sense of creation, Scripture and adoration is actually a very important message for today.⁹¹

XIII. RELIGIONS AND CHRIST: THE MAGI IN THE INFANCY NARRATIVES (2012)

A final theme found in Benedict XVI's theology of the book of nature is the theology of religions, on which he provides illuminating considerations in the last volume of his trilogy on Jesus the Nazareth, *The Infancy Narratives* (2012).⁹² The story of the Magi in Matthew 2:1-11 has been interpreted in various ways in the history of theology. Benedict favors a reading that takes seriously the possibility of a historical core in which a celestial phenomenon guided the Magi whose religiosity combined elements of Babylonian astronomy and Jewish messianic expectation.⁹³ But whatever the historical background, the Pope sees in the narrative a deeper theological significance: "We could well say that they [the wise men] represent the religions moving towards Christ, as well as the self-transcendence of science toward him."⁹⁴

This self-transcendence of science and the movement of the religions towards Christ is an illustration of the book-of-nature theology which we have seen in Benedict earlier. Science and natural religion, both of which find their initial impulse from the book of nature, are incomplete in themselves. They need to be purified and elevated to a higher order, which also confirms the permanent value of their original intuitions. Synthesizing his understanding of the book of nature, the Pope writes of the Magi's following of the star that "this implies that the cosmos speaks of Christ,

⁹¹ *Ibidem*.

⁹² Cfr. J. RATZINGER, *Jesus of Nazareth: The Infancy Narratives*, Image, New York 2012, chap. 4.

⁹³ Cfr. *ibidem*, 98-100. For recent studies on the question, cfr. P. BARTHEL, G. VAN KOOTEN (eds.), *The Star of Bethlehem and the Magi: Interdisciplinary Perspectives from Experts on the Ancient Near East, the Greco-Roman World, and Modern Astronomy*, Brill, Leiden 2015.

⁹⁴ J. RATZINGER, *Jesus of Nazareth: The Infancy Narratives*, 95.

even though its language is not yet fully intelligible to man in his present state.”⁹⁵ Still, the “language of creation” provides “an intuition of the Creator”, but it also goes further in that it also “arouses the expectation, indeed the hope, that this God will one day reveal himself.”⁹⁶

We saw earlier that Benedict’s vision of the book of nature views nature and Scripture pointing together to, and finding their fullness in, Christ. This dynamism is found also in his account of the Magi. The Babylonian tradition of reading the heavens as a medium of divine messages is employed by God’s providence as a way of leading the pagans to Christ, but even a heavenly sign cannot guide them all the way without the help of Israel’s Sacred Scriptures (Mt 2:4-5).⁹⁷ As the Catechism of the Catholic Church notes in its comment on the Magi, the nations had to turn to the Jews in order to discover Jesus.⁹⁸ But instead of highlighting the insufficiency of natural religiosity, Benedict affirms its positive value: “the world religions can become a star that enlightens men’s path, that leads them in search of the kingdom of God. The star of the religions points to Jerusalem, it is extinguished and lights up anew in the Word of God, in the Sacred Scripture of Israel.”⁹⁹

Benedict’s theological analysis of the Magi in Matthew 2 is a masterful synthesis of his theology of the book of nature. Despite its brevity, it strikes a balance between the various elements, encompassing also the meeting of scientific activity (which Babylonian astronomy was, too) and natural religiosity in the human person – a meeting based on the intrinsic self-transcendence of science and capable of provoking an attitude of attentive listening and hopeful expectation. The biblical account of the Magi presents the religious reading of the stars as taking place contemporaneously with the Incarnation itself, so that this astronomical activity enters into a dialogue with Israel’s Scriptures in a way that influences their reading. On the other hand, the dialogue constitutes to the Jews of the time a partial hermeneutic key to the interpretation of

⁹⁵ *Ibidem*, 100.

⁹⁶ *Ibidem*.

⁹⁷ *Ibidem*, 101.

⁹⁸ *Catechism of the Catholic Church*, 528.

⁹⁹ J. RATZINGER, *Many Religions – One Covenant: Israel, the Church and the World*, Ignatius Press, San Francisco 1999, 26.

the messianic prophecies and their fulfilment in history.

XIV. CONCLUSION

In a variety of papal documents, discourses, and audiences, Benedict XVI develops a multifaceted theology of the book of nature. He places its foundations in the Creator *Logos* who is present in all creation and whose self-revelation reached its temporal fullness in Christ. To read the book of nature, we need the tools of reason and science, an attitude of contemplation, and the help of God's grace. The dialogue between the book of nature and book of Scripture is a dynamic one, and it must always have the Incarnate Christ as a reference point in which both find their fullness.

Pope Benedict's theology of the book of nature is developed further through a wide range of applications, from the dialogue between science and theology, to integral ecology, from spirituality to the natural moral law, and from liturgy to the theology of religions. Benedict thus demonstrates the great versatility and fruitfulness of the metaphor, inviting both theologians and believers in general to explore the metaphor in their work and personal lives. It is essentially a unifying metaphor, capable of providing a profound synthesis of various strands of reflection and practice into a dynamic vision which gathers together the entire work of the creative and redemptive *Logos* in a movement towards its fullness in God.

SCIENCE AND FAITH FROM THE VIEWPOINT OF THE SCIENTIST

GUY CONSOLMAGNO

Astronomer and Director of the Vatican Observatory,
Castel Gandolfo, Vatican City State

ABSTRACT: The lived experience of scientists and their opinions about the role of faith in their lives provide a key insight to both contemporary issues and possible future trends in popular attitudes towards faith. Scientists' attitudes both reflect and shape the attitudes of the communities where the scientists live; thus, for instance, at the moment it is quite common for scientists to be skeptical of organized religion while valuing very much the understanding of God that they have learned from that religion. I perceive a large shift over the past fifty years in the behavior of scientists — both believers and non-believers — in their attitudes towards religion, with a former reticence or suspicion being replaced by an appreciation of openness and diversity among our colleagues, though many scientists remain puzzled by the diversity of so many different religions, all seeking the same truth. One modern development fostered by social media is the realization that the assumptions of faith are meta-axioms that make the pursuit of science possible.

KEYWORDS: Religious Beliefs, Astronomy, Scientists, Science and Faith, Tanzella-Nitti.

RIASSUNTO: L'esperienza vissuta dagli scienziati e le loro opinioni sul ruolo della fede nella loro vita forniscono una chiave di lettura sia delle questioni attuali che delle possibili tendenze future negli atteggiamenti diffusi verso la fede. Gli atteggiamenti degli scienziati riflettono e modellano quelli delle comunità in cui vivono; così, ad esempio, attualmente è abbastanza comune che gli scienziati siano scettici nei confronti della religione istituzionale mentre apprezzano la comprensione di Dio che da essa hanno appreso. Negli ultimi cinquant'anni ho percepito un profondo cambiamento nel comportamento degli scienziati — sia credenti che non credenti — verso la religione: la reticenza o il sospetto di un tempo sono stati sostituiti da un apprezzamento dell'apertura e della diversità di posizioni tra i nostri colleghi, anche se molti scienziati rimangono perplessi di fronte alla grande varietà di religioni, tutte alla ricerca della stessa verità. Uno sviluppo moderno, favorito dai social media, è la consapevolezza che i principi della fede sono meta-assiomi che rendono possibile la ricerca della scienza.

PAROLE CHIAVE: Credenze religiose, Astronomia, Scienziati, Scienza e Fede, Tanzella-Nitti.

The opinions that scientists hold about the role of faith in their lives provide a key insight to contemporary issues of faith and science and portend possible future trends in popular attitudes towards the issue. What I propose to present here is merely the outline of some ideas based on my own experience as a scientist of faith; it is a topic that deserves a thorough academic study, beyond the scope of this note.

The “scientist” in the title is not myself, but rather the scientists whom I have come in contact with and spoken to on this topic over the course of many years. Like Fr. Tanzella-Nitti, my position in both the world of science and the world of the Church means that those of my fellow scientists who are people of faith feel free to talk to me about their faiths; and those of my fellow scientists who do not practice a faith nonetheless feel comfortable talking to me with honest questions about the faiths that they see in society around them. It is a privileged position that we hold as scientists of faith, and one that carries with it a responsibility to report to our fellow members of the Church the actual state of the faith-science questions within the scientific community.

A scientist’s attitude on these matters strongly reflects the attitudes of the community where the scientist lives. Thus, for instance, I have found that these conversations have been different in Cambridge, Massachusetts than in Cambridge, England, reflecting the differences in attitudes towards religion in the US versus the UK. But because most scientists have a more immediate experience than non-scientists of both the world of science and of fellow scientists who are religious, the questions they pose can be significantly different from those of the members of the general public. My experience is that scientists can be less likely to hold the popular opinion that faith and science must be incompatible, because they have first-hand experience of knowing many fellow scientists who do not fit this stereotype. Their understanding of how faith and science interact will depend on their own experience with faith, of course; but they recognize that the issue is not settled.

I write as an American raised in the US in the years immediately following World War II. In those times, the outcome of the war was seen as a triumph of godly men supported by the goods of technology that modern science had provided. Both faith and science were seen united in a common good. In this momentary unity, one could hear the

echo of the early days of the Enlightenment, when the new philosophy we now call science was seen as an infallible guide to truth.

During the Enlightenment, many theologians were encouraged to find within the presumed certainties of science various proofs for the existence of God. Alas, often these proofs were of the “god of the gaps” variety. As Michael Buckley SJ has pointed out in his book *At the Origins of Modern Atheism*,¹ once these gaps were filled by subsequent science, what had been thought of as “proofs” of the necessity of God became on the contrary evidence that (to reference a comment attributed to Laplace) one had no need of that “God” hypothesis... leading, ironically, to the rise of atheism. By the whiggish years of the late 19th century, those who wanted to be thought of as smarter than the rest of humanity began to flaunt their radical atheism as a sign of their mental superiority. This stance continues in some circles even to this day.

I entered the world of science with my arrival as a student at the Massachusetts Institute of Technology in 1971. At that time, even given the postwar truce between science and faith among the general public, the 19th and early 20th century whiggism that had suggested that science could replace religion was still an attitude held by many scientists. Over the fifty years since then, however, I have noticed a large shift in the behavior of scientists, both believers and non-believers, in their attitudes towards faith. Where in the past there was a reticence of, or suspicion of, being religious — fifty or thirty years ago, a religious scientist might feel the need to defend the orthodoxy of their science² — in recent years this has been replaced by at the very least an appreciation of openness and diversity in matters of faith among our colleagues.

What caused this change? For one thing, the cultural upheavals of the 1960s saw a growth of skepticism towards all authority, including the authorities of both science and religion. Those who wanted to create a priesthood of science were faced with a culture that had turned against all priesthoods. In particular, the horrors of technological warfare (epit-

¹ M.J. BUCKLEY, *At the Origins of Modern Atheism*, Yale University Press, New Haven 1990.

² This can be found in the public talks given by my predecessor at the Vatican Observatory, George Coyne SJ; cfr. C.M. GRANNEY, (ed.), *From the Director: Selected Works of Fr. George V. Coyne SJ*, Vatican Observatory Foundation, Tucson 2021.

omized by nuclear weapons) and the ecological damage wrought by unbridled technology robbed science of much of its aura of godliness.

Equally important, it was clear to a generation of physicists now raised within the uncertainties of the quantum universe that the naïve materialism of the previous century simply did not describe reality.

But along with that, another radical cultural change beginning in the last years of the 20th century and the early 21st century is playing an interesting role in shattering the old prejudices against religion among scientists. This was the arrival of cultural diversity in academia.

Consider this example: in 1957, a meeting of the leading astronomers of the world was hosted by the Pontifical Academy of Sciences and the Vatican Observatory to discuss the nature of stellar populations.³ The participants at that meeting were a who's-who of the biggest names in astronomy at that time. Inspecting those names, it is not surprising (given the times) that all the scientists were white males. But it was actually the case that none of the scientists present even had names that ended in vowels; they were all of *northern* European ancestry. Thus, even though that meeting was held at the Vatican and featured the presence of Fr. Georges Lemaître, one could expect that the prevailing attitude in the field would be that of Protestant, or post-Protestant, Christianity.

Twenty years later this was still the case. Among the ten graduate students in my cohort at the Lunar and Planetary Lab in 1975 (the first students in the University of Arizona's new Planetary Sciences department), there was but one woman, only one non-Christian (but including two Catholics), and only one person whose name ended in a vowel: me. And of course there were no people of color. While some minorities are still underrepresented in that department, today only a quarter of its graduate students are white males.

Indeed, when I became a Jesuit in 1989, and especially after joining the Vatican Observatory in 1993, I was pleasantly surprised by the reactions to my religious calling that I received from my fellow scientists. Before entering the Order, few of them would have had reason to

³ At the time this was a significant issue, as the fact that older stars were chemically different from younger stars was undeniable evidence that the universe itself was not in a steady state but evolving... supporting the then radical notion of a universe with a finite lifetime, as suggested by the Big Bang theory.

know of my religious beliefs, nor did I know theirs. But after “putting on the collar” the most common conversations that resulted were my colleagues telling me about the various churches they belonged to. The fact that I was now publicly religious gave them permission to bring the subject of religion up; but in fact, they had already come to an accord about how faith and science worked in their lives, and they simply were delighted to share that experience with me.⁴

What this means for the faith-science situation in science today is simply that no longer is only one sort of background assumed to be the default philosophical identity. Furthermore, diversity is seen as an asset, and that diversity includes a diversity of religious beliefs. Young scientists are proud to claim friends and colleagues who are Buddhists, Hindus, or Muslims alongside all varieties of Christianity and Judaism. It means that being religious is no longer something that young scientists feel they must hide.

On the other hand, they are less likely to take such religions as seriously as earlier generations. Religion is seen more to be a cultural artifact, or a choice not much different than one’s favorite brand of coffee.

In April and May of 2005, as a part of a Jesuit program called Tertiaship,⁵ I spent six weeks at Santa Clara University, the Jesuit university in California’s Silicon Valley, interviewing scientists and engineers in the Valley about their religious beliefs. I found a common pattern in my interviews⁶. It is quite typical for many young scientists to be skeptical themselves of organized religion. Like others of their generation, they tend to label themselves as “spiritual, not religious,” while valuing very much the understanding of God that they have learned from those religions.⁷ But as they get older and start raising a family, they often return

⁴ The two exceptions to this reaction were both English white males. As I mentioned above, the attitude toward religion in the UK is still steeped in a prejudice that is foreign to my American experience.

⁵ A sort of spiritual sabbatical that we Jesuits take after we have been in the order for a dozen years.

⁶ These interviews are described in G.J. CONSOLMAGNO, *God’s Mechanics: How Scientists and Engineers Make Sense of Religion*, Jossey-Bass, New York 2008.

⁷ I have found that attitude typical among young scientists in both Cambridges, US and UK.

to organized religion as a way of passing important values and spiritualities to the next generation.

Indeed, it is rare in recent times to find non-believing scientists to label themselves specifically as atheists; they more commonly describe themselves as “agnostic”. Even the more public self-appointed spokespersons of science, who labor to support their bona-fides by not being affiliated with any religion, nonetheless go out of their ways to avoid the atheist tag.

One former graduate student of Carl Sagan once told me that she heard him comment, “an atheist is someone who knows more than I do.” Particularly in his later years he went out of his way not to make enemies, and indeed to find allies, of those with religious faith.⁸ Likewise, Neil DeGrasse Tyson has made a point of respecting the religious roots of science, for example that of the Gregorian Calendar and the use of “BC” and “AD” in designating years of the common era.⁹

What does remain is that many scientists remain puzzled by the diversity of so many different religions, all seeking the same truth. The same physics textbooks are used in India as in Indiana; why are their religions so different?

During my 2005 interviews I heard many different ways that scientists and engineers come to grips with this diversity of faiths. They ranged from “they can’t all be right, so they must all be wrong” or “they are all right, just different descriptions of the same thing”; to “different religions are different approximations to the truth, but some approximations converge on the truth faster than others...” One creative suggestion compared religions to computer operating systems; which one is “right” for you, depends on how you are “wired”, depending on your personal history or your internal needs or your genetics or what you’re trying to get out of that religion. And like computer systems, some religions have more features than others, but at the cost of a higher overhead and the greater possibility of bugs!

My favorite answer suggested that different religions are like different kinds of physics. Aristotelian physics is less accurate, and much less useful

⁸ Evidence of this can be seen in his book and film *Contact*... He contacted the Vatican Observatory at one point for a scene that eventually was not used in the film.

⁹ His grasp of the history involved remains somewhat incomplete, however.

or powerful, than Newtonian physics; but at a certain point Newtonian physics fails, and we can see that it is less accurate than Quantum physics. It's much harder, but it comes closest to the truth.

In fact, this question of where one finds truth goes to the core of the puzzlement that underlies the perceived conflict of faith and science: the nature itself of religious and scientific “truths”.

One common attack on faith often assumes that faith and science are two competing sources of truth, two big books of knowledge. Thus, a conflict is inevitable if something in one book contradicts the other book. Since presumably scientific “truths” can be “proved”, unlike religious truths (which are somehow accepted only on “faith”) this spells the doom of religion.

Besides being a complete misunderstanding of both science and religion, this misapprehension is something that had to be countered even during the era of St. Augustine. In his work *On the Literal Interpretation of Genesis* (dating from 400 AD) he warned that “even a non-Christian knows something about the earth, the heavens, and the other elements of this world, about the motion and orbit of the stars and even their size and relative positions, about the predictable eclipses of the Sun and Moon, the cycles of the years and the seasons... and this knowledge he holds to as being certain from reason and experience. Now, it is a disgraceful and dangerous thing for an infidel to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics.”¹⁰

But notice the irony: the “knowledge that he holds to be certain from reason and experience” that St. Augustine cites here is in fact the Ptolemaic cosmology that we have long since abandoned as being untrue.

For those who wish to defend religion from such an attack, a popular approach is what is called “concordism”: taking the best science of the day and seeing how one might cleverly interpret sacred writings to make it look as if the information was in scripture all along. For example, the Big Bang posits that the universe began in a flash of energy, while Genesis says the first act of creation was God saying, “let there be light”. Light is energy, right? In this way one appears to preserve the infallibility of scripture — while taking for granted, without notice, that science itself

¹⁰ J.H. TAYLOR, (translated by), *The Literal Meaning of Genesis; Ancient Christian Writers*, vol. 41, Paulist Press, New York 1982.

is of course also assumed to be infallible. The example of Augustine is worth remembering here. Any interpretation of scripture based on the best science of today will be made obsolete as quickly as that science itself goes obsolete. This is precisely what happened in the later Enlightenment, leading to the rise of atheism that Buckley described.

A variant on dealing with this perceived conflict between two sets of truths is an idea promoted by Stephen Jay Gould of “non-overlapping magisteria”.¹¹ Still looking at both science and religion as competing books of infallible facts, Gould escapes the conundrum of contradiction by insisting that these are books that cover such completely different topics that there’s no possibility of overlap, hence no conflict. This idea, of course, is but a variant of Averroës’s supposition of two independent truths, one for science and the other for religion.

Note that all these arguments take for granted a fundamentalist understanding of scripture. While working scientists are comfortable with the idea that science itself is incomplete and ever growing, it has been my experience that many scientists who live outside a faith tradition are not familiar with the concept, predating even Augustine, that our understanding of scripture is also always growing. Instead, they assume that all religion is based on the naïveté of a relatively modern literalism.

The primary flaw is assuming that any science is perfectly settled, and that any religious belief is perfectly understood. Of course, this both misunderstands the nature of science and of religion. Neither is a closed book of literal truth, nor is anything that we do know about nature, or God, ever fully understood. That is why it is still worthwhile (and a joy) to pursue the study of both.

Indeed, why should one be afraid of a contradiction between some tenet of faith and some finding of science? Within science itself, it often is the case that one well-held idea becomes contradicted by new data. When this happens, one does not reject all of science. Rather, it is a cause for great joy, because it means that we’re about to

¹¹ Cfr. S.J. GOULD, *Rocks of Ages, Science and Religion in the Fullness of Life*, Ballantine Books, New York 1999; IDEM, *Nonoverlapping Magisteria*, «Natural History» 106 (1997) 16-22. For an interesting rebuttal of this idea, see N. SPENCER, *Magisteria*, Oneworld, London 2023.

learn something new, come to a deeper understanding of a principle we thought we had understood, and maybe get a paper published as a result!

It is important to appreciate that while all these arguments are flawed, they also all contain an element of truth. Science and religion do offer very different ways of understanding and interpreting the universe; that is indeed the strength of knowing both. And one needs a way of coordinating those two viewpoints into a more fully dimensional view of reality.

It is worth noting that while these sorts of arguments are in the back of the mind of scientists pondering the roles of faith and science, the more important argument for them is the empirical evidence that scientists of faith do exist. Somehow, we make it work; even if they don't quite understand how we do it, they can grant that a solution does exist. And the result, especially among the younger cohort of scientists, is a much more accepting attitude toward faith and science.

All of these developments in the attitude of scientists may presage similar developments in the future attitudes of the general public towards science and religion. In the past thirty years I have given hundreds of presentations about the Vatican Observatory to the general public, and I find that our message of tolerance toward science and faith has been very widely adapted even in places (such as the deep southern states of the US... or the editorial pages of the *Times* of London¹²) where one might imagine it would be difficult to be heard. In part, I think this may be a result of the information age, and the ability of non-scientist people of faith to encounter science in more places than just a few television presenters (like the aforementioned Sagan and Tyson) who are usually adamant about their non-religious stance.

The internet age has also brought into the public eye a concept that I think is key to a more mature understanding of how science and faith actually do interact. The concept of "meta" has become commonplace in social media. The online Urban Dictionary gives examples of how this term is being used in popular online speech: "[meta is] about the thing itself. It's seeing the thing from a higher perspective instead of

¹² "Faith and Reason: The Vatican astronomer makes a powerful case for religion and science", Leading Articles, *The Times* (November 18, 2024), 27.

from within the thing... Making a movie about the film industry isn't meta. Making a movie about making movies is. Using a footnote to explain another footnote isn't meta. Using a footnote to explain what footnotes are, is."

Gould spoke of science and religion as being "non-overlapping magisteria"; in that phrasing he was still assuming that both operated on the same level of knowledge. But in fact, religion can rightly be seen as operating at a different, meta, level compared to science. Science is the description of reality; religion is the reason why we can have such a description.

Why do I say that very possibility of science is based on religion? Consider the nature of science itself. Science is a system of logic, and every logical system must start out with axioms. Any such set of axioms is itself a faith system.

One can identify at least three axioms that you must accept, on faith, before you can do any kind of meaningful science. And these are axioms that depend on one's religion. First, you must believe in reality: the universe exists, it's not just a dream. Second, if you are going to go looking for the laws of nature, you must believe that there are laws there to be found. And third, you must believe that it is worthwhile to spend your time and fortune in the pursuit of discovering those laws.

All three of these axioms are religious in nature, which is to say that these axioms are supported only by a small subset of religions. A version of Zen that insists everything is illusion goes against the possibility of finding reality in studying the physical universe. A pagan pantheon of nature gods eliminates the need, or possibility, of nature following repeatable laws. A manichean view of the universe as irredeemably evil would find little purpose, or good, to be discovered studying the universe as described by science. Your choice of religion may affect your faith in these axioms. As a result, only certain religions are going to provide the necessary conditions for science to flourish.

Thus, with this understanding, religion and science can be understood not as two rival ways to explain the universe; rather, religion explains why science can explain the universe. It is a "meta" explanation for the possibility of science itself. Faith and science do overlap, in a meta sense, without interfering with each other.

In conclusion, I find that the way that scientists understand the relationship between faith and science has changed over the last half century, and it continues to change. Unlike fifty years ago (when Fr. Tanzella-Nitti and I were beginning our scientific careers) today many scientists are happy to identify themselves as people of faith; even those who reject religion nonetheless find themselves daily working comfortably with scientists who do embrace faith. Younger scientists especially are comfortable in acknowledging the role of faith in themselves or their colleagues. They recognize the importance of rejecting rigid certainties in either faith or science as they pursue their ever-imperfect, ever-developing understanding of the universe and how it works. In addition, those who have become accustomed to the functioning of social media have become more aware of how rational systems are multidimensional, creating a new way to understand the interaction between faith and science.

Historically there has been a lag between the attitudes of scientists and those of the general public when it comes to our understanding of faith and science. But such a shift of attitude is something we should expect, and look for, in coming years. It will be fascinating to see how this realization will percolate into the study of faith and science interactions... and how in retrospect the work of Fr. Tanzella-Nitti will have paved a way for a future understanding of those interactions.

BEYOND CONFLICT: TEACHING THEOLOGY IN THE LIGHT OF SCIENCE

CHRISTOPHER T. BAGLOW
University of Notre Dame, Indiana

ABSTRACT: It is not difficult to challenge the Conflict Thesis, the notion that faith and science are irreconcilable foes, in teaching Catholic theology to contemporary students. Like every straw man, it falls over with a brief overview of the historical record and the introduction of great Catholics such as Blessed Niels Stensen and Georges Lemaître. But the great and deeply promising work of teaching theology in the light of modern science remains “too often... sterile,” as it was in 1988 when St. John Paul II wrote those words to the Director of the Vatican Observatory. Overcoming notions of conflict remains the primary mode of engaging scientific culture by far too many theological educators. The more that scientific ways of knowing and discoveries become part of our worldview, the more their relation to Christian doctrine becomes essential to our ability to be compelled by the vision of God and the world provided by the Faith. In this essay, I will propose some dead ends to avoid and promising approaches to adopt, investigating the principles that animate theological approaches to science and suggesting principles that contribute to an ethos of fruitful engagement “beyond” conflict.

KEYWORDS: Faith, Science, Analogy, Univocality, Practical Principles, Teaching, Conflict Model, Fittingness, Mystery, Universe, Trinity, Order, Openness.

RIASSUNTO: Non è difficile sfidare la Tesi del Conflitto, l'idea che fede e scienza siano nemici inconciliabili, nell'insegnamento della teologia cattolica agli studenti contemporanei. Come ogni uomo di paglia, essa cade con una breve panoramica della storia e con l'introduzione di grandi cattolici come il beato Niels Stensen e Georges Lemaître. Ma il grande e promettente lavoro di insegnamento della teologia alla luce della scienza moderna rimane “troppo spesso... sterile”, come lo era nel 1988 quando san Giovanni Paolo II scrisse queste parole al direttore dell'Osservatorio Vaticano. Il superamento delle nozioni di conflitto rimane la modalità principale di approccio alla cultura scientifica da parte di troppi educatori teologici. Quanto più i modi di conoscere e le scoperte scientifiche entrano a far parte della nostra visione del mondo, tanto più la loro relazione con la dottrina cristiana diventa essenziale per la nostra capacità di lasciarci coinvolgere dalla visione di Dio e del mondo fornita dalla fede. In questo saggio proporrò alcuni vicoli ciechi da evitare e approcci promettenti da adottare, indagando sui principi che animano gli approcci teologici alla scienza e suggerendo principi che contribuiscono a un'etica di impegno fruttuoso “oltre” il conflitto.

PAROLE CHIAVE: Fede, Scienza, Analogia, Univocità, Principi pratici, Insegnamento, Modello di conflitto, Adattamento, Mistero, Universo, Trinità, Ordine, Apertura.

SUMMARY: I. *Prolegomena: The Corrosive Effect of Bad Principles*. II. *Principle 1: How and Why: Distinguish in Order to Unite*. III. *Principle 2: Untie the Knots – Gently*. IV. *Principle 3: Fittingness and the Centrality of Dogma*. V. *Scientific Enigmas and Theological Mysteries*. VI. *Being, Order, Openness: The Universe and the Trinity*. VII. *Conclusion*.

Giuseppe Tanzella-Nitti's scholarly contributions encompass many facets of the intersection of science and faith: epistemological questions¹, key historical persons/events², and important advances in scientific research as they relate to theology³, to name a few. Given this impressive resume, one might too easily overlook his accomplishments in promoting an educational rapprochement between science and theology beyond the realm of scholarship. A splendid example can be found in *DISF Educational*, his ongoing project for "orienting the relationship between scientific thought, philosophy and Catholic religion" in secondary education.⁴ While his interdisciplinary work is not rare among scholars, the extension of this work into the wider pedagogical arena marks him as a unique and invaluable contributor to the science-religion interface even beyond the depth and breadth of his scholarly contributions.

The insight at the heart of Tanzella-Nitti's engagement of the world outside of the Academy is well-represented by his 2018 contribution to the book celebrating the 80th Anniversary of the Vatican Observatory.⁵ It is rare in its emphasis on the importance of relating science and faith in evangelization, a broad category that includes any proclamation of the Gospel to "the wide strata of contemporary society."⁶ The primary

¹ G. TANZELLA-NITTI, *Religion and Science as Inclinations toward the Search for Global Meaning*, «Theology and Science» 10/2 (2012), 167-78.

² IDEM, *Between Science and Religion: Angelo Secchi and His Time*, in G. CONSOLMAGNO, I. CHINNICI (eds.), *Angelo Secchi and Nineteenth Century Science: The Multidisciplinary Contributions of a Pioneer and Innovator* Springer Nature, Cham 2021, 3-22.

³ IDEM, *Antropico, Principio*, in G. TANZELLA-NITTI, A. STRUMIA (a cura di), *Dizionario Interdisciplinare di Scienza e Fede: Cultura Scientifica, Filosofia e Teologia*, Urbaniana, Città del Vaticano 2002, 102-105. Cfr. *ibidem*, 24-25 for a complete list of his entries, which range across the domains of science, philosophy and theology.

⁴ Cfr. <https://disf.org/educational/il-nostro-progetto>.

⁵ IDEM, *Some Reflections on the Influence and Role of Scientific Thought in the Context of the New Evangelization*, in G. GIONTI, J. ELUO, *The Vatican Observatory, Castel Gandolfo: 80th Anniversary Celebration*, Springer Nature, Cham 2018, 235-244.

⁶ IDEM, *Some Reflections*, 238.

emphasis is not on polemical or apologetic approaches that predominate in many popular Catholic writings and even catechetical endeavors, in which refutations of atheistic claims take center stage. Instead, and refreshingly, Tanzella-Nitti writes past the conflict model of science and religion; in his words, “I believe that within the ‘New Evangelization’ task set by the Catholic Church at the beginning of the third millennium, the encounter with scientific culture is to be seen not only as a challenge, but also, and even more, as a *significant opportunity*.”⁷ Although “[t]here are some knots which have to be untied,” such as addressing the media’s identification of science and atheistic thought, and the assumed symbiosis of science and secularization⁸, addressing claims of conflict are prefatory, not primary. The more urgent need and promising approach is the presentation of Christian Revelation “through a compelling hermeneutics suited for those who are familiar with the context of the natural sciences, of psychology and history,” i.e. for those who live within our twenty-first century culture, for which scientific knowledge provides the implicit cultural context and frame of reference.⁹

Tanzella-Nitti’s insight expands upon the call for a “relational unity” between science and religion already issued by St. John Paul II in his 1988 Letter to George V. Coyne, S.J., then Director of the Vatican Observatory. The latter connects the dialogue between science and religion to the proclamation of the faith in a memorable passage:

For the truth of the matter is that the Church and the scientific community will inevitably interact; their options do not include isolation. Christians will inevitably assimilate the prevailing ideas about the world, and today these are deeply shaped by science. The only question is whether they will do this critically or unreflectively, with depth and nuance or with a shallowness that debases the Gospel and leaves us ashamed before history.¹⁰

⁷ *Ibidem*, 235.

⁸ *Ibidem*, 236.

⁹ *Ibidem*, 238.

¹⁰ ST. JOHN PAUL II, *Letter to the Reverend George V. Coyne, S.J., Director of the Vatican Observatory*, in R.J. RUSSELL, W.R. STOEGER, S.J. and G.V. COYNE, S.J. (eds.), *Physics, Philosophy and Theology: A Common Quest for Understanding*, Vatican Observatory, Città del Vaticano 1988, M13 (“M” is used to distinguish the Letter from the other essays in this volume).

My own experience in teaching theology to undergraduates and secondary educators has borne out the wisdom of Tanzella-Nitti's/St. John Paul II's approach, which moves beyond polemics to a reflective consideration of how one might express the mysteries of faith in the modern scientific environment/culture, with its denizens as primary interlocutors.

It would not be surprising if, in envisioning such work, one's mind moves first to topics such as the biblical creation accounts, human evolution, etc., that create questions about the harmony between science and faith. But the even more essential (and often unexamined) issue has to do with the objective assumptions that animate one's approach to such topics, assumptions which St. John Henry Newman might refer to as *principles*. Newman distinguished between Christian doctrines and the principles that vivify them; he famously wrote that "[p]rinciple is a better test of heresy than doctrine," and that the development of doctrine is largely the operation of principles which do not develop but are "more immediately ethical and practical."¹¹ Translating the principle/doctrine distinction from intra-ecclesial development of Christian doctrine¹² to instructing beginners, informing unbelievers, and inspiring the hearts and minds of both may seem a leap, but the two are not so far removed. As a survey of history shows, it is quite often the exigencies of the latter which stimulate the former.¹³

In this regard, I will focus on principles which should inform theological approaches to faith-science topics. It has been observed that faith-science dialogue can easily run aground precisely due to the provisional character of some scientific theories,¹⁴ and this is even more

¹¹ ST. JOHN HENRY NEWMAN, *An Essay on the Development of Christian Doctrine*, University of Notre Dame, Notre Dame 1989, 178-181.

¹² For the effect of science on the development of Christian doctrine, see J. HADDAD, *Modern Natural Science in Service to Catholic Theology*, dissertation, Catholic University of America 2022.

¹³ For examples, see INTERNATIONAL THEOLOGICAL COMMISSION, *Sensus Fidei in the Life of the Church*, 2014 (https://www.vatican.va/roman_curia/congregations/cfaith/cti_documents/rc_cti_20140610_sensus-fidei_en.html#_ftnref86).

¹⁴ E. McMULLIN, *A Common Quest for Understanding*, in R.J. RUSSELL, W.R. STOEGER, S.J. and G.V. COYNE, S.J. (eds.), *John Paul II on Science and Religion: Reflections on the New View from Rome*, Vatican Observatory, Città del Vaticano 1990, 55.

reason for a theologian to adopt sound principles that can be applicable beyond the present state of science. I will focus on three that I consider the most essential to success at making scientific culture “an ally and a fascinating partner” in teaching theology for a new evangelization.¹⁵ But first, I will examine some unhelpful principles that keep theological approaches bound to conflict assumptions, and which lead to dead-ends in engaging science in theological instruction.

I. PROLEGOMENA: THE CORROSIVE EFFECT OF BAD PRINCIPLES

Newman observed that when doctrines are animated by insufficient principles, they become lifeless and inauthentic, informed by motives and matters other than their deepest meaning and goal. There are many examples of this in the theological engagement of modern science, in which “[e]xtremes meet” – the principles that animate the engagement do not provide a vital path because they are not true to Christian doctrine itself and could just as readily inform contradictory doctrines.¹⁶ In this regard, let’s consider two attempts to marshal modern science into demonstrations of the existence of God: Intelligent Design (I.D.) Theory¹⁷ and biblical concordism.¹⁸ In both we see approaches that remain bound to the assumption of conflict, and could easily invite one to atheism just as they superficially invite one to faith.

In I.D. Theory one uncovers the faulty principle that God’s creative activity can be understood univocally as technical craft producing living artifacts of irreducible complexity incapable of evolving naturally. Of course, this “God of the Gaps” approach fails as science progresses and natural causes are discovered for such phenomena as the human eye or the bacterial flagellum.¹⁹ But what is more devastating is the aban-

¹⁵ TANZELLA-NITTI, *Some Reflections*, 241.

¹⁶ NEWMAN, *Essay*, 181-182.

¹⁷ Cfr. A. GAUGER (ed.), *God’s Grandeur: The Case for Intelligent Design*, Sophia Institute, New Hampshire 2023.

¹⁸ Cfr. G.L. SCHROEDER, *Genesis and the Big Bang: The Convergence of Scientific and Biblical Wisdom*, Free Press, New York 1997.

¹⁹ Cfr. K.R. MILLER, *Finding Darwin’s God: A Scientist’s Search for Common Ground Between God and Evolution*, Harper, New York 1999, 129-164, in which he offers examples of the filling of gaps in scientific knowledge.

donment of the analogy of being so essential to all good theology, the reduction of divine activity to an omniscience and omnipotence that remains far too comprehensible to the human mind. Such a principle is indistinguishable from atheist assumptions about Christian belief. The Intelligent Designer of I.D. Theory too readily succumbs to John William Draper's false accusation that the "sacred science" of Catholic doctrine "[sees] in the Almighty, the Eternal, only a gigantic man."²⁰

A more capacious and healthy principle, and one which respects the mystery of the divine, might be the *integrity of nature*, aptly expressed by the Catholic Thomist Charles de Koninck in his rejection of creationism:

Let us say that there are two ways in which scholastics have sought to honor the Creator. The one consists in diminishing as much as possible the causality of the creature. That is the "idea in the back of the mind" of those authors who are called creationists [...] They deny the scientist the right to derive biological species the one from the other.

At the other extreme is found the Thomistic tendency, inspired by St Augustine, which enriches as much as possible the causality of the creature, not with the goal of eliminating creative intervention, but in order to increase it: for the creative power, envisaged from the side of its effect is most profoundly at work where created causes are most causes. The more a creature is capable of acting, the more it manifests the power of its ultimate cause, for God is the cause of all causality... If we have a dread of the spirit which animates creationism this is because it is not creationist enough.²¹

This approach can be discovered throughout the Catholic theological tradition, including in Newman's famous willingness to go the "whole hog" with Darwin rather than insist on special creation.²² It is the power of created causes, not their incapacity, which honors divine wisdom and power, for God is the Source of being and the non-disruptive "cause of all causality." In this way, science can be the study of God's handiwork not because of what it cannot explain, but because of what it can.

²⁰ J.W. DRAPER, *History of the Conflict Between Religion and Science*, D. Appleton, New York 1875, 62.

²¹ C. DE KONINCK, *The Writings of Charles De Koninck*, vol. 1, R. McINERNEY (ed.), University of Notre Dame, Notre Dame 2016, 292-293.

²² J.H. NEWMAN, *The Philosophical Notebook of John Henry Newman*, vol. 2, E. SILLEM (ed.), Nauwelaerts, Louvain 1969, 158.

Biblical concordism is the attempt to demonstrate a unity between science and theology through discovering an agreement between divine revelation and modern scientific discoveries, which concordists claim can be discerned once one has sufficient understanding of both science and the biblical creation accounts. A principle assumed by concordists is that human and divine authorship are univocal, such that divine inspiration produces a complete, verbal inerrancy in which scientific accuracy becomes proof of divine inspiration. This approach shows its inadequacies once one attempts to apply it to biblical passages beyond the creation accounts,²³ and can easily lend itself to a rejection of divine revelation. Richard Dawkins' assertion that the "Genesis story... has no more special status than the belief that the world was created from the excrement of ants"²⁴ is animated by the same univocal assumption.

By contrast, the principle of *divine condescension*, that God inspires human authors as true human authors within their own time and context, offers to a theological engagement of science the opportunity to dwell deeply on Sacred Scripture and see consonances with the modern scientific mindset without attempting to discover agreement. St. John Paul II describes this principle while rejecting a univocal understanding of inspiration: "A false idea of God presses a certain number of Christians to believe that, since God is the absolute Being, each of his words has an absolute value, independent of all the conditions of human language [...] Although he expresses himself in human language, he does not give each expression a uniform value, but uses its possible nuances with extreme flexibility and likewise accepts its limitations."²⁵

Both I.D. Theory and concordism are attempts (conscious or unconscious) to banish mystery from theology²⁶, exacerbating notions of conflict rather than alleviating them. In what follows, I will offer some

²³ Cfr. D.O. LAMOUREUX, *Evolutionary Creation: A Christian Approach to Evolution*, Lutterworth, Cambridge UK, 2008, 149-151 for the many inconsistencies between ancient biblical views of the world's operation and physical reality as understood by modern science.

²⁴ R. DAWKINS, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe Without Design*, W.W. Norton, New York 1986, 316.

²⁵ ST. JOHN PAUL II, *Address to the Pontifical Biblical Commission*, April 23, 1992.

²⁶ NEWMAN, *Essay*, 181.

practical principles that I propose serve a relational unity beyond rumors of conflict.

II. PRINCIPLE 1: HOW AND WHY: DISTINGUISH IN ORDER TO UNITE

In his Letter to Coyne, St. John Paul II insisted that distinguishing between science and theology is a crucial first step in any true rapprochement between them. “Each should possess its own principles, its pattern of procedures, its diversities of interpretation and its own conclusions [...] in which each discipline retains its integrity [...]”²⁷ Clarifying this distinctiveness challenges the assumption of competition and opens the door to positive reflection within the theological engagement of scientific culture and discoveries. This principle is brilliantly captured in the French title of Jacques Maritain’s *The Degrees of Knowledge*: “*distinguer pour unir*,” distinguish to unite. As he notes, “To scatter and to confuse are both equally inimical to the nature of the mind. ‘No one,’ says Tauler, ‘understands true distinction better than they who have entered into unity.’ So, too, no one truly knows unity who does not also know distinction.”²⁸

One helpful approach is to consider the distinctiveness of the questions each addresses by using the adverbs “how” and “why,” terms which St. John Paul II himself utilized to characterize that distinctiveness.²⁹ Science investigates the physical universe according to its internal rules and patterns, telling us *how* it works. Faith is occupied with what the whole system of the universe *means*: the transcendent divine purposes for the universe, its part in human flourishing, and questions about its Creator and how the universe reflects his perfect wisdom and goodness.³⁰ How/why differences within human activities – why music is composed and enjoyed distinguished from how musical instruments work, the principles of musical theory, etc. are helpful starting points to elucidate the distinction. Then it can be more directly illustrated by

²⁷ ST. JOHN PAUL II, *Letter*, M8-M9.

²⁸ J. MARITAIN, *The Degrees of Knowledge*, vol. 7, in R. McINERNEY, F. CROSSAN, B. DORRING (eds.), *The Collected Works of Jacques Maritain*, University of Notre Dame, Notre Dame 1998, ix.

²⁹ ST. JOHN PAUL II, *Discours aux Participants au Colloque sur le Thème: Science, Philosophie et Théologie* September 5, 1986.

³⁰ *Catechism of the Catholic Church*, LEV, Città del Vaticano 1997, n. 299.

comparing well-known scientific discoveries on the one hand (“how”) and insights from saints about the deepest significance of the world and the purpose of human existence on the other (“why”).³¹ Savoring the difference between the approaches raises the questions of their intrinsic potential and limitations in illuminating reality, creating an avenue for their dialogue.

Two shortcomings of the how/why approach must be kept in mind so that the distinction is not misunderstood. The first is that it can be confused with a separationist approach which locks faith and science into separate compartments, one addressing facts, the other addressing values, meaning and purpose,³² a common assumption in our secular culture which tends to privatize faith and to absolutize science. It should be emphasized that both science and faith can tell us things that are objectively true about the physical universe, even if science must fall silent regarding realities that transcend the physical universe, and faith must fall silent on empirical questions exclusive to the scientific domain.

A second danger is that the how/why distinction might seem to dismiss the issue of natural teleology, purposiveness intrinsic to organisms other than human beings, which despite the claims of some is not a useless relic of pre-Darwinian science.³³ Also, when properly inflected teleology is important to the philosophical underpinnings of the science-faith encounter; one need only recall St. Thomas Aquinas’ Fifth Way.³⁴ In using the distinction, therefore, it should be emphasized that one is postponing, not banishing, the issue of whether questions of purpose are important to understanding non-human realities and may even be valuable to science.³⁵ Science may benefit from including

³¹ C.T. BAGLOW, *Faith, Science and Reason: Theology on the Cutting Edge* 2nd ed., Midwest Theological Forum, Downers Grove 2019, 4-8.

³² Cfr. S.J. GOULD, *Rocks of Ages*, Jonathan Cape, London 2001, 51.

³³ D.M. WALSH, *Evolutionary Essentialism*, «British Journal of the Philosophy of Science» 57 (2006) 425-448.

³⁴ ST. THOMAS AQUINAS, *Summa Theologiae*, I.2.3; J.A. BUJES, *On Misrepresenting the Thomistic Five Ways*, «Sophia» 48 (2009) 26, 30-31.

³⁵ D.M. WALSH, “*Chance Caught on the Wing*”: *Metaphysical Commitment or Methodological Artifact?*, in P. HUNEMAN, D.M. WALSH (eds.), *Challenging the Modern Synthesis: Adaptation, Development, and Inheritance*, Oxford Press, New York 2017, 239-260.

why perspectives within its how explanations, but it cannot address the transcendent why questions which only divine revelation, general and special,³⁶ can answer.

III. PRINCIPLE 2: UNTIE THE KNOTS – GENTLY

Tanzella-Nitti wisely recognizes that to move beyond a conflict mentality does not mean that one can pretend that it does not exist; as noted above, there are “knots which have to be untied” in a theological engagement of science. Yet an overly forceful, direct approach can easily keep conflict as the lingering motif in the minds of students, snarling the knots more inextricably by retaining the *ethos* of conflict. Conflict is itself a principle that lies deeper in the mind than the examples so often used by New Atheists to illustrate it; the feebleness and superficiality of those examples themselves reveal that they are mere variations on a governing theme that underlies the secular mindset. Consequently, an approach which digs out roots rather than stripping foliage is required. Here the wisdom of Søren Kierkegaard is apropos:

If one is truly to succeed in leading a person to a specific place, one must first and foremost take care to find him where he is and begin there [...] In order truly to help someone else, I must understand more than he – but certainly first and foremost understand what he understands. If I do not do that, then my greater understanding does not help him at all.³⁷

One effective approach endorsed by Tanzella-Nitti is historical and biographical³⁸ — the consideration of the history of science and biographical sketches that show the unity of science and faith in the lives of thinking believers. Examples of the latter, such as St. Albert the Great, Blessed Niels Stensen and Msgr. Georges Lemaître challenge the conflict thesis not through direct denial but through positive examples. If the Christian faith is intrinsically anti-science, such scientific pioneers should not exist in its history, or should only do so problematically. That they do exist unproblematically, and that there are so many³⁹, testifies

³⁶ G. O’COLLINS, *Rethinking Fundamental Theology*, Oxford Press, Oxford 2011, 56-95.

³⁷ S. KIERKEGAARD, *Kierkegaard’s Writings, XXII: The Point of View*, ed. by H.V. Hong, E.H. Hong, Princeton, New Jersey 1998, 45.

³⁸ TANZELLA-NITTI, *Some Reflections*, 236.

³⁹ For a carefully constructed and curated list, cfr. “Catholic Scientists of the Past,”

eloquently to the harmony of science and faith.

It is also helpful to consider the Galileo Affair. Claims of conflict tend to characterize all of Church history as variations on Galileo's condemnation, as if Galileo's fate is characteristic of the Church's treatment of scientists. Correcting this notion while avoiding "[b]oth an apologetics that seeks to justify everything and an unwarranted laying of blame, based on historically untenable attributions of responsibility"⁴⁰ allows students to see the Galileo Affair as the exception, not the rule, in the Church's engagement of science.⁴¹

Finally, one of the most effective ways of reaching the roots of the conflict thesis, at least in the American context, is to consider its genesis in the 19th century, both the context as well as the specific claims of the original conflict theorists, i.e., John William Draper and Andrew Dickson White. It is not an exaggeration to assert that these two together gave rise to the conflict approach that so many today still accept as unquestionable; in fact, it is often simply called the Draper and White Conflict Thesis by historians. Draper and White's work was deeply influenced by European rationalism, and focusing on that background would be significant for a European context. The work of James Ungureanu is helpful for both approaches.⁴²

IV. PRINCIPLE 3: FITTINGNESS AND THE CENTRALITY OF DOGMA

Very often the theological engagement of science is kept to the level of natural theology and the credibility of theism in the light of modern science. The existence of God is shown to be compatible with, and perhaps even suggested by, the discoveries of modern science: the mathematical beauty discovered in the deep laws of nature suggests cosmic design, features of the cosmos such as anthropic coincidences suggest divine Providence, convergence in evolution suggests divine purpose.

<https://catholicscientists.org/scientists-of-the-past/>.

⁴⁰ INTERNATIONAL THEOLOGICAL COMMISSION, *Memory and Reconciliation: The Church and the Faults of the Past*, December 1999, chap. 4.

⁴¹ Cfr. A. FANTOLI, *Galileo: For Copernicanism and for the Church*, Vatican Observatory, Città del Vaticano 1994 for a thorough treatment.

⁴² J. UNGUREANU, *Of Popes and Unicorns: Science, Christianity and How the Conflict Thesis Fooled the World*, Oxford Press, New York 2022.

There is no doubt that, as a starting point, such discussion is essential. It provides students with the proper conceptual framework and robust scientific evidence that counters assumptions that natural beauty, the trajectory of cosmic development and the evolution of the biosphere are epiphenomenal rather than reflections of the transcendent Origin of the universe and of creatures.⁴³ Yet overextending such a discussion can feed the assumption that theology must wrestle its way back out of conflict and that the encounter between science and faith is reducible to apologetics.

That much more is possible and desirable can be discerned in the hopeful questions John Paul II posed to theologians in 1988:

If the cosmologies of the ancient Near Eastern world could be purified and assimilated into the first chapters of Genesis, might contemporary cosmology have something to offer to our reflections upon creation? Does an evolutionary perspective bring any light to bear upon theological anthropology, the meaning of the human person as the *imago Dei*, the problem of Christology – and even upon the development of doctrine itself? What, if any, are the eschatological implications of contemporary cosmology, especially in light of the vast future of our universe? Can theological method fruitfully appropriate insights from scientific methodology and the philosophy of science?⁴⁴

In each of these questions save the last, the pope touches on central doctrines of the faith: the dogma of creation, the *imago Dei*, Christology, eschatology, adding that “[q]uestions of this kind can be suggested in abundance.” When teaching theology in the light of modern science, engaging the deepest spiritual realities should be the goal, and arguments *ex convenientia*, from “fittingness”, are most suitable for inviting contemporary students into the heart of the Christian mystery.

For St. Thomas Aquinas, the verb *convenire* “refers primarily to the bringing together of various things”; the greatness of arguments from fittingness is that they draw various assets together for the same end.⁴⁵

⁴³ Cfr. S.M. BARR, *Modern Physics and Ancient Faith*, University of Notre Dame, Notre Dame 2004 for a splendid example of establishing the reasonableness of the *praeambula fidei* in the light of modern physics.

⁴⁴ ST. JOHN PAUL II, *Letter*, M11. For an affirmative answer to the final question, cfr. TANZELLA-NITTI, *Scientific Perspectives in Fundamental Theology*, Claremont Press, Claremont 2022.

⁴⁵ A. JOHNSON, *A Fuller Account: The Role of ‘Fittingness’ in Thomas Aquinas’ Development of the Doctrine of the Atonement*, «International Journal of Systematic Theology» 12/3 (2010), 305.

In his own practice Aquinas saw it as appropriate to have recourse to fittingness within the natural sphere in explaining central Christian mysteries. For example, in response to the objection that God should have not added Christ's Passion as an additional means to his divine will to save, St. Thomas uses a biological example, noting that "[e]ven nature uses several means to one intent, in order to do something *more fittingly*: as two eyes for seeing; and the same can be observed in other matters."⁴⁶ Arguments *ex convenientia* have the advantage of surpassing apologetics and leading to a more direct engagement of central dogmas. They do not aim to prove them, but rather "attempt to reveal the inner coherence and the wisdom of the divine design, the theo-drama that has been revealed by a God who is true, good, and beautiful."⁴⁷ In doing so, they move past conflict stances and assumptions to the central objects of the Christian faith, inviting students to bring faith and science together in such a way that they can encounter God reflected in the truth, goodness and beauty of natural realities understood powerfully through scientific discoveries.

In the following subsections I will explore two examples of fittingness arguments that engage modern science. First, I will survey the fittingness of scientific paradoxes to the essential supra-comprehensibility of theological mysteries. Second, I will examine the fittingness of the doctrine of the Trinity and the broad picture of the universe's cosmic and biological evolution.

V. SCIENTIFIC ENIGMAS AND THEOLOGICAL MYSTERIES

From its outset, the great thinkers of the Scientific Revolution took unequivocal language as an essential scientific ideal; "clear and distinct" ideas about physical realities were to be always sought.⁴⁸ It is not surprising that, once the ideal of unequivocal language metastasized into reductionism and materialism in some quarters of the Enlightenment, it became a central principle of the conflict thesis. The words of Wil-

⁴⁶ S.Th., III.46.3 *ad* 1, (italics mine).

⁴⁷ N. AUSTRIACO, *A Theological Fittingness Argument for the Evolution of Homo Sapiens*, «Theology and Science» 17/4 (2019), 542.

⁴⁸ A. FUNKENSTEIN, *Theology and the Scientific Imagination: From the Middle Ages to the Seventeenth Century*, Princeton University, Princeton 1986, 25-28.

liam Draper, “mysteries must give place to facts”⁴⁹ still resounds among many of today’s students, for whom paradoxes may be interesting to think about but cannot be real.

Obviously, such an ideal is utterly foreign to theology, which requires analogy and the assent to mysteries that transcend simple comprehension and often seem to embody contradictions. Jesus Christ, Christians believe, is both fully God and fully man; the Eucharist is really the Body, Blood, Soul, and Divinity of Christ, although it has all the chemical properties of bread and wine; salvation is a pure gift of God’s grace, but we must work it out “in fear and trembling” (Phil 2,12). Were physical reality thoroughly explicable through clear and distinct ideas, one might have a warrant for claiming that science and theology share no common ground. But thanks to important advances in understanding the deepest structure of physical reality, we now know that science unveils its own paradoxes, in which our descriptions are mere approximations of richer realities that escape clear and distinct conceptualization by limited, finite human minds. Physical reality is deeper, stranger, and more wonderful than the human mind can fathom. And what is true of our universe must certainly be even more true of its Creator. Paradoxes are fitting in a universe created by the God whose self-revelation includes many mysteries that elude full comprehension.

The example most well-known to students today is the wave-particle duality of light. In a lecture on quantum mechanics, the great physicist Richard Feynman captured the strangeness of this reality: “We choose to examine a phenomenon which is impossible, absolutely impossible, to explain in any classical way, and which has in it the heart of quantum mechanics. In reality, it contains the *only mystery*.”⁵⁰ Previously, Einstein expressed the paradox by saying “We have two contradictory pictures of reality; separately neither of them fully explains the phenomena of light, but together they do.”⁵¹ Similarly, we must think of Christ as fully human and fully divine, sometimes understanding the hypostatic union

⁴⁹ DRAPER, *History of the Conflict*, vi.

⁵⁰ R. FEYNMAN, *Feynman Lectures on Physics, Volume I: Mainly Mechanics, Radiation and Heat*, Basic Books, New York 2010, 37-1.

⁵¹ A. EINSTEIN, L. INFELD, *The Evolution of Physics*, 18th print ed., Touchstone, New York 1967, 262-263.

from the one angle, sometimes from the other, but always refusing to abandon either perspective, as the two natures are mysteriously united in one divine Person.

Joseph Ratzinger himself recognized scientific enigmas as analogous to theological mysteries. In his words,

We can only speak rightly about [God] if we renounce the attempt to comprehend and leave him as the uncomprehended [...] What is true [of light] here in the physical realm as the result of the deficiencies in our vision is true in an incomparably greater degree of the spiritual realities and of God [...] Only by circling around, by looking and describing from different, apparently contrary angles can we succeed in alluding to the truth, which is never visible to us in its totality.⁵²

Therefore, there is something like an epistemological connaturality between truths about the physical universe such as the nature of light, and central theological dogmas such as the hypostatic union. Here science and faith meet each other—in humility of mind, in awe and wonder. Science not only clarifies and makes the complex simple. When the truth requires it, it also reveals paradoxes. And in faith, the believer professes the Ultimate Mystery. By relinquishing tidy concepts while maintaining assent, the mysteries of God become the light of the mind, clarifying the meaning of human life.⁵³ Here we can consider the words of the Book of Revelation describing the heavenly city at the end of all things: “The city had no need of sun or moon to shine on it, for the glory of God gave it light, and its lamp was the Lamb.”⁵⁴ The Lamb who is the Risen Jesus—God from God, and light from light.

VI. BEING, ORDER, OPENNESS: THE UNIVERSE AND THE TRINITY

When Dante Alighieri “visits” the heart of heaven in his *Divine Comedy*, he describes peering upon “Glory Infinite and Light Eternal.” Yet he offers no direct description of God. Instead, he describes what he sees as a book, the book of the universe: “Within its depths, this light, I saw, contained, bound up and gathered in a single book, the leaves that scat-

⁵² J. RATZINGER, *Introduction to Christianity*, Ignatius Press, San Francisco 2004, 174.

⁵³ Cfr. P.E. HODGSON, *Science and Belief in the Nuclear Age*, Sapientia, Naples 2005, 115-116.

⁵⁴ Rev 21,23.

ter through the universe—beings and accidents and modes of life.”⁵⁵ In other words, he sees the universe from the divine perspective, with all things interwoven by God.

Dante’s poetic perspective echoes St. Augustine and St. Thomas Aquinas. To them (as well as to St. Albert the Great and St. Bonaventure) we owe the doctrine of the *vestigia trinitatis*: that to eyes illumined by faith, the traces of the Trinity, specifically the divine Persons and trinitarian relations, are discoverable in every created being. For Aquinas, “the coming out of the persons in their unity of nature is the cause of the coming out of creatures in their diverse nature[s].”⁵⁶ While creation is formally the work of the entire Trinity, it is fitting that one attribute the ineffable power revealed in the very existence of each creature to the Father Almighty, the orderly nature of each creature to the Son-*Logos*, and the dynamism of each creature towards its flourishing to the Holy Spirit⁵⁷, the Gift-Love of God. In this deeply metaphysical and mystical vision, the *esse*, *ratio* and *telos* of any finite being can be seen as bearing the impression of the Triune God, as Dante subtly suggests in referring to his vision of beings (*substanze*), accidents (*accidenti*) and modes of life (*costume*, “customs”).

But for Dante as for Aquinas, this is a vision of leaves “scattered” and “gathered,” of beings in the universe as they relate to God singly and diversely. Modern science has now provided what they lacked—a comprehensive empirical account of the universe and of life, in both origins and development, including “the very small and the very large, the living and the nonliving, the different branches of empirical science, the structural and dynamic features of nature [...]”⁵⁸ Able as we are today to characterize not just *creatures*

⁵⁵ *Paradiso*, XXX.85-88 in DANTE ALIGHIERI, *The Divine Comedy: Inferno, Purgatorio, Paradiso*, transl. by R. Kirkpatrick, Penguin Books, New York 2012, 480.

⁵⁶ ST. THOMAS AQUINAS, *I Sent. d. 2, div. text.*, as quoted in G. EMERY, *The Trinitarian Theology of St. Thomas Aquinas*, Oxford University, Oxford 2010, 343.

⁵⁷ A. NICHOLS, *Discovering Aquinas: An Introduction to His Life, Work and Influence*, Eerdmans, Grand Rapids 2002, 75.

⁵⁸ M. ARTIGAS, *The Mind of the Universe: Understanding Science and Religion*, Templeton Foundation, Philadelphia 2000, xix.

but *cosmos*, we see an interplay of order and openness, symmetry and surprises that unite the Book of Nature. Mariano Artigas describes both under the rubric of “natural creativity,” beginning with patterns in nature (order) and then the phenomenon of emergence in which novel levels of order can arise (openness).⁵⁹ And just as *being, order and flourishing* are, for Aquinas, the Trinity reflected in each and every creature, *being, order and openness* are quite fitting hallmarks of the universe *per se*, created by a God who is Triune, created by the Father through the Son and in the Holy Spirit as they have revealed themselves in the economy of salvation.

In that economy, the perspective of faith turned toward the universe is already equipped with a vision of orderliness, that it is created through the Son-*Logos*, the latter word denoting “Mind” or “Reason.” It is fitting that this orderly, intelligible universe is created through the divine *Logos*, the transcendent Lawgiver who spoke through Moses and the prophets, bringing order into the life and culture of his Chosen People, and then became flesh in Jesus Christ to reorder all of human life. Here the abyss between human experience and material reality is spanned by the recognition that the perspective of faith finds a counterpart in the assumption of order in science. St. Paul’s confident declaration that “[...] in him were created all things in heaven and on earth, the visible and the invisible [...] all things were created through him and in him all things hold together”⁶⁰ takes on new dimensions especially in the light of modern physics, which reveals the rich mathematical order found precisely in those branches of physics that describe the fundamental forces of nature that truly do hold all physical things together.⁶¹

The openness of the cosmos as a trace of the Holy Spirit is a new but (I propose) organic development of the *vestigia* doctrine in the light of modern science. It is fitting to the Holy Spirit, as the divine Person in Whom the universe is created, “the wind” that “blows

⁵⁹ *Ibidem*, 62-66, 101-105.

⁶⁰ 1 Col 1,16.

⁶¹ Cfr. F. WILCZEK, *A Beautiful Question: Finding Nature’s Deep Design*, Penguin, New York 2015.

where it wills,”⁶² that the universe develops in radically surprising ways. For throughout salvation history, it has been the Holy Spirit whom we see at work whenever new things spring forth.⁶³ As I wrote in *Faith, Science and Reason*,

The Holy Spirit, the divine person who is Gift-Love, is always associated with the new and surprising in God’s work in history, when old patterns are taken up and brought to new levels not reducible to what went before. At the beginning of the universe, the Spirit is depicted as moving “over the waters” as new things are to be brought forth (Gen 1,1). The Incarnation of the divine Son is a new event, expected by no one, not even by his own mother, who receives the Holy Spirit in order to conceive him in her womb: “The Holy Spirit will come upon you, and the power of the Most High will overshadow you: therefore the child to be born will be called holy, the Son of God” (Lk 1,34). And so, through Mary’s “yes” to God and the overshadowing of the Holy Spirit, what it means to be human, the true way that God intends, is revealed in the life, death, and resurrection of her Son.⁶⁴

To Virginal conception can be added many other “innovations” in the economy of salvation: biblical inspiration, the sacraments, and the life of grace, to name just a few. Even the title of the Holy Spirit as the uncreated “Love-Gift” of God⁶⁵ carries connotations of the unexpected. The greatest gifts are unmerited and involve the unexpected and unpredictable. And love, which is something freely given, is surprising when it is directed toward us by another and has the capacity to change our lives in new and unpredictable ways. These deeply human and divine realities find correspondences in the novelties of the cosmos.

VII. CONCLUSION

It is my hope that identifying some principles that can animate theological discourse about, and in reflection upon, modern science offers a fruitful way of moving beyond an engagement limited by conflict assumptions. By learning to think about theological realities in the light of contemporary science, teachers of theology can overcome the pathology of a self-enclosed, defensive approach in which conflict deforms

⁶² Jn 3,8.

⁶³ Ps 104,30.

⁶⁴ BAGLOW, *Faith, Science and Reason*, 14-15.

⁶⁵ ST. JOHN PAUL II, Encyclical *Dominum et vivificantem* on the Holy Spirit, no. 10.

methodology.⁶⁶ It may open a way for the scientifically literate denizens of the 21st century to think about the Catholic Faith in terms they understand. Moving beyond the borders of disciplines in this way, we can hope that the Church may realize more intensely in her great mission of theological education “the activity of Christ within her: ‘For God was in Christ, reconciling the world to himself’ (2Cor 5,19).”⁶⁷

⁶⁶ J. ŻYCIŃSKI, *God and Evolutionism: Fundamental Questions of Christian Evolutionism*, transl. by K. Kemp, Z. Maślanka, CUA Press, Washington 2006, 4.

⁶⁷ ST. JOHN PAUL II, *Letter*, M4.

THE USE OF EXPERIMENTAL SCIENCES BY THEOLOGY

Giuseppe Tanzella-Nitti's Contributions in the Context of Fundamental Theology

LUCIO FLORIO

Pontifical Catholic University of Argentina (UCA)
School of Philosophy and Literature, and School of Theology

ABSTRACT: Revelation is explored by each human generation with the cognitive instruments of its time. The Church as a whole understands new aspects of the revealed Word, transmitted since the apostolic age. Theology plays a major role in this task. Using human reason, it attempts to deepen and clarify the meaning of Revelation. One of the novelties of the last century has been the incorporation of the natural sciences into theological work. This fact constitutes an extension of the use of reason in the reflection on creation, from the perspective of biblical Revelation. This paper will analyze the way in which Giuseppe Tanzella-Nitti considers the use of the natural sciences in the task of theology. For this purpose, two sources will be reviewed. First, the *Dizionario Interdisciplinare di Scienza e Fede*. The method is sought there as Tanzella-Nitti, in the great framework of the dialogue “science and religion”, introduces scientific contents and methods in theology. Secondly, the proposal of his *Theology of Revelation in Scientific Context*, is analyzed. It is a question of individualizing the way in which he includes scientific themes in the program of a theological reflection on Revelation.

KEYWORDS: Theology, Science, Revelation, Religion, Tanzella-Nitti.

RIASSUNTO: La Rivelazione viene esplorata da ogni generazione umana con gli strumenti cognitivi del suo tempo. La Chiesa nel suo insieme comprende nuovi aspetti della Parola rivelata, trasmessa fin dall'età apostolica. La teologia svolge un ruolo importante in questo compito. Utilizzando la ragione umana, cerca di approfondire e chiarire il significato della Rivelazione. Una delle novità dell'ultimo secolo è stata l'incorporazione delle scienze naturali nel lavoro teologico. Questo fatto rappresenta un'estensione dell'uso della ragione nella riflessione sulla creazione, dalla prospettiva della Rivelazione biblica. Questo articolo analizzerà il modo in cui Giuseppe Tanzella-Nitti considera l'uso delle scienze naturali nel lavoro teologico. A tal fine, verranno esaminate due fonti. In primo luogo, il *Dizionario Interdisciplinare di Scienza e Fede*. Vi si cerca il metodo con cui Tanzella-Nitti, nel grande quadro del dialogo “scienza e religione”, introduce contenuti e metodi scientifici nella teologia. In secondo luogo, viene analizzata la proposta della sua *Teologia della Rivelazione in contesto scientifico*. Si tratta di individuare il modo in cui egli inserisce i temi scientifici nel programma di una riflessione teologica sulla Rivelazione.

PAROLE CHIAVE: Teologia, Scienza, Rivelazione, Religione, Tanzella-Nitti.

SUMMARY: I. *Introduction*. II. *The Use of Science by Theology in the Context of the Dialogue between Science and Religion*. III. *The Theology of Science in the Understanding of Revelation*. 1. The Sciences in Theology in the Ecclesial Context. 2. The Scientific Vision of the World as a Factor of Dogmatic Progress. IV. *Conclusions*.

I. INTRODUCTION

One of the great tasks that Catholic theology must face in our times consists in the introduction of the rationality of the natural sciences in its elaboration and internal developments. Having overcome – at least partially – an era in which the conflict between science and religion demanded a sustained effort to validate the place of religion in the cultural scenario, we are in a period in which theology must make use of this already consolidated use of reason that we call natural sciences or, simply, sciences. It is of interest in the present article to describe some aspects of Giuseppe Tanzella-Nitti's proposal on the use of the sciences by theology. Since this is a central question in the research program of the author in question, a couple of sources will be selected in order to capture the central features of his proposal.

II. THE USE OF SCIENCE BY THEOLOGY IN THE CONTEXT OF THE DIALOGUE BETWEEN SCIENCE AND RELIGION

The question of the use of the sciences by theology is present in a great part of Tanzella-Nitti's work. In an explicit way, however, he develops it in the encyclopedia entry "Scienze naturali, utilizzo in teologia", within the *Dizionario Interdisciplinare di Scienza e Fede* (hereafter: *DISF*).¹ In the introduction to this article, the Italian theologian points out that theology is a *descending* knowledge that tries to illuminate reality from the Word of God and that, nevertheless, it needs an *ascending* moment in which, from scientific and philosophical knowledge, it goes towards divine Revelation. In this sense, the question of the use of science by theology constitutes an ulterior step to that of the dialogue between science and religion. It

¹ G. TANZELLA-NITTI, "Scienze naturali, utilizzo in teología", in G. TANZELLA-NITTI, A. STRUMIA (eds.), *Dizionario Interdisciplinare di Scienza e Fede*, vol. II, Città Nuova, Roma 2002, 1273-1289. The article is available in: www.DISF.org/Voci/107.asp. Cfr. también: G. TANZELLA-NITTI, *Las ciencias naturales en el trabajo teológico*, en C.E. VANNEY, I. SILVA, J.F. FRANCK (eds.), *Diccionario Interdisciplinar Austral*, 2016, URL=https://dia.austral.edu.ar/Las_ciencias_naturales_en_el_trabajo_teológico (consulta November 18, 2024).

is a moment subsequent to that of the comparison of scientific data with religious experience. It is therefore a challenge not only to increase the knowledge of the revealed data, but also to modify the angle of its understanding within the new horizons broadened by the sciences, which can confront theology with new problems that will lead it to finer and deeper analyses.²

Traditionally, theology has been compared with philosophy. The scientific revolution of the Modern Age positioned the sciences as another interlocutor. However, the confrontation with the sciences, although it offers some similar characteristics to the relationship between theology and philosophy, nevertheless presents some original notes. On the one hand, the interpretation of scientific data is often linked to particular theoretical-philosophical perspectives. These require from the theologian a discernment that continues the relational history of theological activity with philosophy. But, on the other hand, many results of the sciences have a proximity to reality and a possibility of objective and universal verification – in a certain way unique – that make them disciplines with a particular cognitive value in relation to philosophy.

Under the title: “From dialogue to intellectual integration: some epistemological premises”, Tanzella-Nitti develops some fundamental points to achieve the integration sought. There are several factors that have allowed the dialogue between science and religion to be less conflictive today than in previous times. On the one hand, the overcoming of deterministic mechanicism and the pretended self-referentiality of the logical-mathematical project. These are two philosophical paradigms in which scientific knowledge had been entangled for a long time, compromising its potential for dialogue with other sources of knowledge. On the other hand, the recognition that the scientific enterprise is an *activity of the individual* and, therefore, open to the canons of personal knowledge, reintroduced the subject in an epistemological framework that includes the cognizing subject. Thirdly, it has been important to increase awareness of the philosophical questions raised in the analysis of the sciences, even when these are not formalized or resolved within the scientific method.³

² TANZELLA-NITTI, *Scienze naturali*, 1273.

³ As an influential example decades ago, at least of the recognition of different fields, see: S. JAY GOULD, *Ciencia vs. Religión. Un falso conflicto*, Crítica, Barcelona 2007.

From the point of view of theology, on the other hand, there has been a progressive reception of the contemporary scientific vision of the physical cosmos, life and the human species, as an essential contextual horizon for a better understanding of the biblical doctrine on creation and of the history of salvation itself.⁴

Tanzella-Nitti formulates two clarifications regarding the approach to the sciences in view of a theology that wants to see in them a source of positive reflection. In the first place, he stresses the need to take a position on the issue of truth in the sciences. Secondly, the availability to clarify some terminological aspects and, eventually, to review some theological categories in the light of scientific knowledge about nature and the human being.

On the first aspect, the author argues that theology should not insist too much on the *fallible* character of the scientific enterprise. As an important part of the epistemology of the last century (Popper, Kuhn, Lakatos, Feyerabend, etc.) emphasizes, science does not have the degree of certainty and accuracy claimed by the different types of positivism or scientism. However, the absolute deconstruction of scientific knowledge is sterile. Thus, epistemological programs structured from the concepts of falsification, paradigms, research programs, inconsistencies, etc., confer a profound fragility to the truth content of the sciences. Against this tendency, Tanzella-Nitti aims at rescuing the positive scope of scientific knowledge, while admitting its partially revisable value. Indeed, although these epistemological approaches are in part justified, an irrelevant use of them ends up distorting scientific knowledge of its *veritative* instances, confining it to the horizon of a mere *phainomenon*. However, he stresses, scientific knowledge itself participates in the metaphysical order. Indeed, the world of experience does not represent for the sciences a closed and self-referential enclosure, but is the gateway to the *being* of things. Highlighting the instances of truth of scientific thought, as well as the real progress of its knowledge in a realist epistemological frame of reference, facilitates the resizing of commonplaces such as, for example, that science deals with the *how* and not with the *why*. This is not so, since scientific research responds to precise *why* and, within its specific

⁴ The bibliography and subject matter is vast. See the list of *DISF* voices, which gives an idea of the impact of science on theology.

formal object, has an *unlimited* material object.⁵ It would not be difficult to show that also those limits that science captures within its method (incompleteness, unpredictability, necessity of reference to formal or final causalities, etc.) constitute rather *openings* towards higher levels of understanding or towards more general formal objects. Consequently, they would refer rather to its foundations than to its limits.

A second question has to do with theology's use of terms that have a strong cosmological connotation, such as *earth, heaven, life, death, time, space, light*, etc.⁶ In medieval times, theological language and scientific language used the same terminology. Today this is not the case, and when this happens, an equivocal content is produced, as happens, for example, with the term *nothing*, or with the very notion of *creation*. The fact that theological language (analogical, symbolic, poetic, doxological, etc.) is necessarily richer than that of the sciences does not exempt the theologian from a certain terminological rigor, a rigor to which the world of the sciences is particularly sensitive. The use of two notions deserves particular attention: that of *transcendence* and that of *experience*. In the use of the first, essential for all theological discourse, we should know how to show its connection with the analysis of the sciences and with their relative epistemological and anthropological openings. In the use of the second notion, crucial for all scientific discourse, one should

⁵ The author means that, although methodologically restricted and limited by their concrete object of investigation, scientific questions point towards an object that transcends the pure observation of the phenomenon. In this sense, their dynamism would lead them towards a metaphysical plane, a plane forbidden to scientific research, precisely because of a methodological self-restriction. Tanzella-Nitti crosses a distinction that goes back to a traditional view that the sciences deal with the *how* and philosophy with the *why*. The former include questions about why, not limiting themselves only to perceptible phenomena, while philosophical questions are not totally unconcerned with the phenomenal character of reality.

⁶ With this statement, Tanzella-Nitti seems to indicate that the biblical authors' view of cosmic realities is naive and direct. They understand them as they see them. There is no critical distancing from the realities designated by the words used. Such understanding immediacy continues during the Middle Ages, and only breaks down after the scientific revolution, where the distance between the intuitive vision of the universe and the explanatory theories given by the sciences widens. Cfr. L. FLORIO, *A second naivety in the contemplation of nature. Circularity between natural and revealed experience of God*, «Third Millennium» XIII (2010) 6-19.

know how to explain in what way the experience of the things of God and the experience of the sciences traverse the sphere of the sensible world and of history.

In general terms, an approach capable of constructively taking up the *provocation* of the sciences on theology presents itself as a very demanding task. In order to declare the simple compatibility between the scientific reading of the world and the reading offered by Revelation, the theologian can give in to the easy escape of not taking the results of science too seriously. But, if instead he wants to use them as a source of speculative reflection or dogmatic development, he must do exactly the opposite, that is, take them seriously.⁷

Tanzella-Nitti offers a brief *status quaestionis* of the issue. In this sense, he affirms that the magisterium of the Catholic Church has paid more attention to the human sciences than to the natural sciences. The reason has been that the former have a role as auxiliary sciences in the study of Sacred Scripture (history, philology, etc.), and that, in addition, they are useful for knowing the historical and existential situation of the addressee of the Gospel message (psychology, sociology, anthropology, etc.). However, the Second Vatican Council offers some valuable reflections on the natural sciences. The magisterium of John Paul II has also contributed notable texts in which scientific data and visions

⁷ TANZELLA-NITTI, *Scienze naturali*, 1277. The author underlines the aspect of epistemological seriousness. Theology, in general, has difficulties in incorporating the central themes of the sciences, largely because this implies incorporating areas of knowledge that are foreign to them, not only in content but also in methods, which are very different from those proper to theological disciplines. Fortunately, much literature has appeared on this issue in recent decades that allows us to overcome this situation. For reference only, cfr. A. PEACOCKE, *Theology for a Scientific Age. Being and Becoming-Natural, Divine, and Human*, Fortress Press, Minneapolis 1993; J. POLKINGHORNE, *Belief in God in an Age of Science*, Yale University Press, New Haven 1998; K. SCHMITZ-MOORMANN, *Teología de la creación de un mundo en evolución*, Verbo Divino, Navarra 2005, 207-253; L. GALLEN, *Ciencia y teología. Propuestas para una síntesis fecunda*, Epifanía, Buenos Aires 2007; J. HAUGHT, *Ciencia y fe. Una nueva introducción*, Maliaño, Cantabria, Sal Terrae 2019. Likewise, there are research projects expressed in the digital medium (such as <https://disf.org/dizionario/>), in societies (<https://www.issr.org.uk/>; <http://www.zygoncenter.org/>; <https://investigacion.upaep.mx/index.php/centro-de-estudios>; <https://www.esssat.net/>; <https://fundaciondecyr.org>; etc.) and periodicals (<https://www.zygonjournal.org/>; <https://www.ctns.org/publications/theology-science>; <https://quaerentibus.upaep.mx>; <https://revistas.comillas.edu/index.php/razonyfe/about>); etc.

are incorporated.⁸ As for systematic theology, with few exceptions,⁹ the incorporation of data and conclusions from the sciences into theological discourse has been very limited. In the last decades there have been added those who cultivate the dialogue between science and religion, although their concerns are fundamentally epistemological and not properly dogmatic.¹⁰

A topic of particular interest is that of the physical image of the universe and its possible implications for the theological reading of biblical Revelation. Indeed, one of the greatest openings of human knowledge generated by science comes from *physical cosmology*. Today we have sufficient data to conclude that the physical universe has a marked historical-evolutionary dimension. The cosmos has been subject to a slow and enormous development over time, starting from an initial phase capable of containing, under physical conditions of very high density and temperature and incredibly small dimensions, all the matter and energy existing today. It is not excluded that our universe coexists with other spatio-temporal regions, totally independent, and with different evolutionary histories, thus forcing to formulate statements and distinctions between a physical and a philosophical explanation of the universe. The spatio-temporal horizon that underlies the understanding of the universe in which we live has undergone an extraordinary enlargement. This has forced us to rethink the location of the human race and its cosmic habitat. Today we cannot do without these new horizons of understanding of the universe, just as European man could not ignore the worlds that appeared both through geographical discoveries and the Copernican revolution. The time from the formation of the first chemical elements to the appearance of life on earth, and from its emergence to hominization, has been incredibly long.¹¹ The natural sciences have

⁸ Cfr., for example, *Letter of His Holiness John Paul II to the Rev. George V. Coyne, S.J., Director of the Vatican Observatory*, AAS 81 (1989) 274-283. The use of the sciences in diagnosing the environmental situation can also be seen in FRANCIS, *Laudato si'*, May 15, 2024.

⁹ In Spanish, it is still a notable precedent: J. LUIS RUIZ DE LA PEÑA, *Teología de la Creación*, Santander, Sal Terrae 1992.

¹⁰ TANZELLA-NITTI, *Scienze naturali*, 1277-1282.

¹¹ To illustrate the author's assertion, the image of the history of the universe (estimated at 13.8 billion years) compared to a library of 30 volumes of 450 pages each is

the capacity to reconstruct the salient steps of this history, and are able to predict some of the main future scenarios. The latter are also characterized by very long, though not infinite, timescales. These long time periods indicate that the conditions for hosting biological life correspond to opportune windows that have occurred since a certain epoch and that, after a certain time interval, will no longer occur.

But the long spaces and long times of the universe were strictly necessary for the conditions, places and times for the slow synthesis of the chemical elements to have taken place, and thus for the formation of physical, chemical and biological niches suitable for hosting life to be possible. We know today, moreover, that there is a *fine tuning* between the structure of the universe and the physical, chemical and biological conditions on which life, which was to appear much later, was based. From this point of view, we are now in a position to affirm that for the presence of human life to occur, the initial conditions of the cosmos were as important as the innumerable contingent events that occurred throughout the evolution of the universe.

As far as the *laws* that govern it are concerned, it is known that the physical universe is not governed by laws that can always be formalized in a mathematical way, nor is it entirely predictable. The universe is not deterministic, but neither is it indeterministic. Its elementary components possess specific and stable properties, which manifest the characters of identity and universality on a wide cosmic scale. But, along with the *essences*, there are the relations. Indeed, there are no totally isolated properties, because the part depends on the whole. In the universe there is a positive quantity of information, irreducible to the support of matter or of the energy that transports it. On the stage of the laws of nature emerges the

eloquent. Each of the pages symbolizes 1.000.000 years. During the first 21 volumes there is no trace of life – at least as far as we know. The history of planet Earth appears in volume 21, that is, 4.5 billion years ago. Life, however, appears in volume 22, some 3.8 billion years ago. Near the end of volume 29 is the Cambrian explosion, which generates a multiplicity of new species with surprising patterns of complexity and diversity. Dinosaurs appear in the middle of the thirtieth volume, but disappear on page 385. Only during the last 65 pages of this volume does the life of mammals develop. Hominids appear in the last pages, and *Homo sapiens* only in the last lines of the last page (J. HAUGHT, *Cristianismo y ciencia. Hacia una teología de la naturaleza*, Sal Terrae, Santander 2009, 15).

question of the origin of their intelligibility and rationality, as well as their harmony with the canons of human knowledge. Moreover, with respect to the cosmic structure, it is known that the distinctions between matter and energy, between space and time, between matter and vacuum, must be reread with totally new categories. For, the author reminds us, there are other phenomena that must be incorporated into the analysis, such as the following: matter and energy transform each other; the flow of time depends on the curvature of space and therefore on the matter contained in it; the physical vacuum, once the universe is in being, is the seat of very high energies that can in turn be transformed into enormous quantities of matter. Nature is indeed capable of responding to emergence and also of manifesting itself creatively. In this sense, its history is not one of slow degradation and progressive direction towards uniformity. If this is true on a very large scale, for a low and intermediate scale new structures can be generated that are always more complex, in which information accumulates and increases: physical reality remains something truly *open* to the novelty of history.

Biology, on the other hand, has shown us that the human being assumes in his own corporeal dimension this long cosmic and planetary history. Within a tiny genetic patrimony, to a very large extent common to that of the lower animal species, is contained the essential information of his future corporeal development. To each individual living being is assigned a certain genetic code comparable to a program capable of reconstructing, in a non-reductive but informative way, the physical-corporeal structure and the biological processes of a living being. We now know that the various forms of life on our planet have undergone slow transformations that have led to the appearance of new species and the disappearance of others. Such an itinerary does not indicate only a development or a growth, but a true and proper evolution. Several factors have contributed to make it possible: the adaptation of living beings to the environment in which they have found themselves, a certain natural selection, the development of precise organic functions, the presence of channelings and internal coordinations which, becoming explicit over time, have progressively led living beings towards more perfected and complex forms. Among them, the species *Homo sapiens sapiens* represents a visible vertex. The times and the phases that have paced the appearance of man on earth and the progressive ascent of the first men towards the

conquests of civilization and culture that we know today have been much longer than could reasonably be thought until a few decades ago. Modern astronomical observations outside our atmosphere have also revealed to us that the presence of stars with planets, rotating around them, is a widespread phenomenon. On the other hand, there are no observations of other forms of life, not even elementary ones, but the hypothesis that these have originated in environments similar to ours is highly plausible.¹² Scientific research is increasing the idea that, because of the dimensions of the universe, and the time required to communicate through space, it is not possible (nor will it ever be possible) to have complete information about all the regions of the universe.

Tanzella-Nitti formulates the need to renew the theology of nature and to move towards the elaboration of a theology of science. As has been pointed out, the list of results and perspectives opened up by the sciences is wide and deep. However, only a few questions have been mentioned, especially cosmological, biological and anthropological ones. Others could be added, in the fields of high energy physics, quantum mechanics, chemistry or biochemistry, zoology or human physiology. As far as the mathematical sciences and logic are concerned, they too have been the protagonists of quite significant successes. However, these are to be considered as belonging more to the field of philosophy than to that of the natural sciences. But the point at issue is not to examine an immense mass of results as a whole. It is rather a question of assessing whether these results represent only a source of problems for the theologian's reading of the world and its relationship with God, based on Revelation, or whether what the natural sciences teach us today can truly constitute a positive source of speculation and theological progress. True progress, on the other hand, is possible when the emerging problems are faced and eventually resolved, proposing new ways of understanding Revelation that allow us to increase the intelligibility of reason and, with it, also the credibility of faith in a scientific context.¹³

¹² Tanzella-Nitti deals with the subject in the voice "Extraterrestre, vita", in *DISF*, 591-605. The theme has acquired a growing development in recent years. Cfr. J. FUNES (ed.), *La búsqueda de vida inteligente extraterrestre. Un enfoque interdisciplinario*, Educc, Córdoba 2023.

¹³ There are certain scientific questions that have an impact on the way theological questions are formulated. Just as an example: the original creation has been consid-

Positively, it would be enough to think of the horizon in which today, precisely thanks to the sciences, theology can better frame what it means to say “to be a creature in a created world”. The meaning and importance of these terms today acquire a weight and a context that they did not have before; and even if this does not directly increase the dogmatic content of the theological notion of creation as an act *ex parte Dei*, it increases it, on the other hand, in its implications for its other two meanings: as a relationship and as a created effect.

It should be added that it is also interesting for the theology of creation to think that the essential conditions of harmony between physics and biology occurred in the initial moments of the development of the cosmos, that is, long before the successive biological evolution. Therefore, the possible Christological resonances of a teleological centrality, no longer geometrical, of life and man in the cosmos should be evaluated. Tanzella-Nitti questions the biocentrism and anthropocentrism proper to the worldviews prior to the transformation of the way of understanding the universe and the history of life. Today it is clear that the human being is not in the physical – or “geometric” – center of the cosmos, nor in the middle of its history. Something analogous happens with the human being, who has appeared relatively recently in the history of the biosphere. In this sense, the physical and temporal decentering of humans implies reformulating the teleological vision.¹⁴

ered more deeply with the consolidation of the Big-bang model. Moreover, the same inflationary model as the assumption of the fact of the evolution of species has led to formulate in greater depth the doctrine of continuous creation, not only as a permanent participation of being in creation, but also as a support of the ontological novelties of new stellar bodies and new species. In this regard, cfr. M. HARRIS, *La naturaleza de la creación*, Sal Terrae-Comillas, Madrid 2019; P. CLAYTON, A. PEACOCKE (eds.), *En él nos movemos y existimos. Reflexiones panenteístas sobre la presencia de Dios en el mundo tal como lo describe la ciencia*, Sal Terrae-Comillas, Madrid 2021.

¹⁴ The figure of P. Teilhard de Chardin, with his idea of the “Omega Point”, is of interest in this subject. But it is also interesting in his integration of the Christocentric model of Eph 1:3-14 with the idea of an evolving universe and biosphere. For Teilhard’s current relevance in the integration of theology and science, cfr. L. GALILENI, “Teilhard de Chardin: Moving Towards Humankind?”, en G. AULETTA & R. MARTÍNEZ (eds.), *Biological Evolution: Facts and Theories. A Critical Appraisal 150 Years After “The Origin of Species”*, Gregorian & Biblical Press, Roma 2011, 493-516; G. GIUSTOZZI, *Pierre Teilhard de Chardin. La “reinención” de la experiencia religiosa*, Eucasa, Salta 2023.

In this sense, our author continues, genetic information can be used to rethink the Christian doctrine of the resurrection of the flesh, as well as that of the dissolution and resurrection of the human body.¹⁵ Would the great attention directed by Christian thought to the theology of the body, a body that also participates in the image of God, capable of revealing the person and of being a temple of the Holy Spirit, also receive new light from the fact that such a body, even before being human, embodies a very long evolutionary, cosmic and biological history? And how would the order and harmony of a nature crowned at the end of creation by the human being be understood, when one considers that in the history that preceded it, innumerable species have appeared and disappeared, not without reciprocal rivalry and often with painful antagonisms? On the level of salvation history, then, the understanding of the relationship between objective redemption and subjective redemption could receive significant suggestions from the very long times that have elapsed since the appearance of the human species on earth, especially considering that the vast majority of human beings who have lived until now have not come into contact with the paschal event of Christ.¹⁶ The author offers these examples to show the meaning of what we understand, not only because of the potentiality contained in them, but also because of the need for serious and rigorous interdisciplinary work.

Among the questions to be resolved is the importance of explaining today the relationship between the first creation and the new creation in ways that do not contradict the knowledge we have of material reality. The evaluation of the elements of continuity and discontinuity present in that relationship, about which Revelation also instructs us, should be made on the basis of a scientific perspective, with possible implications for eschatology, including intermediate eschatology.

¹⁵ Cfr. in this regard, the application of genetic information on eschatology proposed in: J. POLKINGHORNE, *El Dios de la esperanza y el fin del mundo*, Epifanía, Buenos Aires 2005, 111-119.

¹⁶ Our present understanding of the history of *Homo sapiens* allows us to perceive the following situation: the majority of humans have not had contact with the biblical Revelation and, therefore, have not consciously and freely appropriated the objective redemption of Christ. This implies considering in context the salvific economy, characterized by an implicit presence in a multitude of human beings.

Tanzella-Nitti clarifies that it is a matter of *implications* and not necessarily of *problematizations*, that is, of intelligibility requirements for a better dogmatic understanding of Revelation itself. On the basis of the continuity/discontinuity relationship between the first and the new creation, some elements linked to original sin should be framed. Independently of the possible hermeneutics underlying the biblical narrative – whose explanation in accordance with the essential content of the dogma is the task of exegetes – if the historical entrance of sin into a world already created long ago is presented with precise consequences for human nature and for the material world as a whole, then theology should clarify whether or not the *discontinuity* introduced by such consequences has aspects observable at the scientific level. If so, a confrontation with the sciences would shed light on the way in which human death should be understood, suggesting for example the distinction between the fulfillment of a biological cycle and the dramaticity with which the end of physical life is noticed by a rational creature who questions the goodness of its Creator. A confrontation with the sciences could also suggest that the disorder introduced into nature by man's sin would admit interpretations that emphasize the anthropological dimension (disorder in the relationship between sinful man and nature), without necessarily insisting on a physical dimension intrinsic to nature itself (disorder in nature). This would also lead to different ways of understanding what *physical evil* consists of and its significance in God's plans. Finally, indications could be drawn on the correct way to understand the relationship between the historical and meta-historical dimension of original sin itself.

The meaning and logic of the history of salvation—which is the history of God's freedom and man's freedom—certainly surpasses anything that the sciences can reconstruct about the meaning of the evolutionary histories of the cosmos and of life. And yet the history of salvation takes place in those histories and is interwoven with them. The realism of the mystery of the Incarnation, by which the Word, taking upon himself the human nature, has also taken upon himself all the relationships with creation, implies that we must take this intersection seriously, exploring its consequences in depth.

III. THE THEOLOGY OF SCIENCE IN THE UNDERSTANDING OF REVELATION

In his voluminous work *Teologia della Rivelazione in contesto scientifico*,¹⁷ Tanzella-Nitti frames the question of theology and the sciences in the theological theme of the understanding of Revelation. As its title indicates, this is a text of fundamental theology, in which he includes the contribution of the sciences in the activity of deepening the Church's knowledge of the revealed deposit. This constitutes a novelty for Catholic theological epistemology, not because it had not been postulated in a general way, but because it has been systematically applied in a treatise on fundamental theology.

The theme of the dogmatic development of the Church in the context of scientific progress implies, first of all, addressing the delicate question of the increase in the understanding of Revelation. Our author reviews the subject historically, focusing on the thought of J.H. Newman. The dogmatic development of the Church consists, according to the English theologian, in a homogeneous progress, as it occurs in a living organism. Newman offers seven criteria for discerning a homogeneous development of Revelation in the history of the Church.¹⁸ This is a historical reality, which is facing new cultural situations, and which must propose the Gospel to each generation with fidelity, but with depth at the same time. Tanzella-Nitti recalls the luminous text of *Dei Verbum* no. 8, which points out that the apostolic Tradition progresses in the Church with the assistance of the Holy Spirit, and that the understanding of both the realities and the words transmitted grows. This growth is produced jointly by “contemplation and study”.¹⁹

It is in this context of growth in the knowledge of revealed truth that our author places, as an important aspect, the role of the sciences.²⁰

¹⁷ G. TANZELLA-NITTI, *Teologia della Rivelazione in contesto scientifico*, vol. 4, *Fede, Tradizione, Religioni*, Città Nuova, Roma 2022. Of the extensive work, we will use vol. 4 and, in particular, we will confine ourselves to what the author develops in chapter VIII, under the title: “Lo sviluppo dogmatico della Chiesa nel contesto del progresso scientifico”, 491-534.

¹⁸ TANZELLA-NITTI, *Teologia della Rivelazione in contesto scientifico*, 500.

¹⁹ *Ibidem*, 502.

²⁰ Point VIII, 2 deals with: “Il ruolo delle scienze nell'intelligenza della Rivelazione e nello sviluppo dell'insegnamento dogmatico” (*ibidem*, 506-534).

There are two ways in which dogmatic teaching moves towards development: one *ad intra*, by which the Church progresses in the knowledge of the mystery of God through meditation, prayer and study; the other, following a stimulus coming “from outside”, through the knowledge of different fields of knowledge that demand that theology broaden its hermeneutical horizon. There are three main thematic areas in this last task: the use of the natural sciences in the work of theology, the clarification of dogmatic progress, and the orientation of the transmission of the faith taking into account the contemporary scientific context. We will refer in particular to the first two.

1. The Sciences in Theology in the Ecclesial Context

The use of the sciences by theology has been discussed in point 1, based on the respective voice in the *DISF*. In this work, our author takes up and deepens that discourse. He maintains that in speaking of “utilization” it is not done in an instrumental way, in the manner of the auxiliary sciences, but within a cognitive synthesis in which the singular disciplines concur with equal dignity in the search for truth. This can only happen if a realist scientific epistemology is practiced, one that recognizes itself as capable of accessing well-founded and irreformable knowledge, distancing itself from visions of science that consider its results always reformable. It is an epistemology that admits a hierarchy of levels of intelligibility in such a way as to allow science to find its foundation in a philosophy of nature; and, in turn, that makes it possible for the latter to find in itself the foundation of an ontology open to a theological reading of reality.

Using Ian Barbour’s classic classification (conflict, independence, dialogue and integration),²¹ Tanzella-Nitti points out that this approach goes beyond *dialogue* to *integration*. Our author affirms that a mature expression of the *mutual creative interaction* (Russell) would be the elaboration of a “theology of nature”, a discipline that is being consolidated within

²¹ I. BARBOUR, *Religion and Science: Historical and Contemporary Issues*, Harper Collins, San Francisco 1997. Other typologies: J. HAUGHT, *Ciencia y fe. A New Introduction*, Sal Terrae, Maliaño 2019 presents five: conflation, conflict, contrast, contact and confirmation. A typology that includes time and is, therefore, diachronic, in L. FLORIO, *Ciencia y religión. Perspectivas históricas, epistemológicas y teológicas*, Eucasa, Salta 2020, 29-38.

the horizon of interdisciplinary dialogue. Its epistemological status distinguishes it from the theology of creation. The former is concerned with examining “natural reality, as *the object of the sciences*, in the light of Revelation, while the theology of creation, which inaugurates theological anthropology as protology, has as its object God as creator and, secondarily, created reality as the effect of God”.²²

Tanzella-Nitti takes up the thesis of St. Thomas Aquinas²³ which affirms that a better knowledge of nature can contribute to a better knowledge of God and his plan of salvation. The fact of bringing to the present the Thomistic texts on the importance of rational knowledge of nature to access the knowledge of God is appropriate, since it allows us to see the value assigned to human reason to deepen the vision of theology. In his brief historical tour, he rescues one of the several examples of mentioning nature as one of the two books written by God. It is Tommaso Campanella, who speaks of “the book of Christ”, which is the world, and which belongs to us, Christians, who must know how to read with expertise.²⁴

However, as Tanzella-Nitti points out in her quick historical overview, the idea that the sciences help theology, and even faith itself, allowing it to progress in its knowledge, is not a thesis accepted by all in our time. The main resistance comes from the current view of epistemology, which emphasizes its fallible and permanently revisable character. There is a tendency to relativize the results of the sciences “with the aim of not putting too much into discussion formulations or theological visions already acquired, whose overcoming would require a supplement of theological research and an intellectual synthesis not available at the moment”.²⁵

In this regard, it is interesting to note the testimony that our author gathers from K. Rahner. The German theologian pointed out that it was very difficult today to arrive at a unity of knowledge between faith and scientific thought and, therefore, to arrive at a theology of nature. Science, with its limits and methodological complexities, does not offer results, but paradigms. The faith of the Church should be limited to the

²² TANZELLA-NITTI, *Teologia della Rivelazione in contesto scientifico*, 508 (our translation).

²³ THOMAS AQUINAS, *C.G. II*, c. 2.

²⁴ *Apologia per Galileo*, III, tr. it. 99. Quoted in TANZELLA-NITTI, *Teologia della Rivelazione in contesto scientifico*, 511.

²⁵ TANZELLA-NITTI, *Teologia della Rivelazione in contesto scientifico*, 512 (our translation).

creative sovereignty of God and his merciful condescension towards us, fully revealed in Christ.

2. *The Scientific Vision of the World as a Factor of Dogmatic Progress*

With regard to the dogmatic contents that are integrated into the new perspectives of the sciences, these seem to concern the treatise on creation – protology and anthropology – and also eschatology. The reference is not so much to the “notes” of creation, whose philosophical-theological dimension transcends the plane of empirical analysis, but to the set of teachings that show some kind of interaction with natural history. Among these, the location of the human being in the cosmos. In particular, it is interesting to think about the moral role of the human being in creation, the cosmic-natural dimension of the contents associated with the Blessing, the Covenant and the Promise.

In this sense, it should be noted that the biological origins of the human species modify the understanding of the way in which Revelation has entered history and left its mark. In particular, ecclesial teaching must explain, within the framework proposed by the sciences, how sin has spread and what has changed in the objective and universal aspects of the human condition. It is also within this same framework that the historical and meta-historical dimension of original sin must be explained.

Tanzella-Nitti formulates an interesting synthesis of the theological program impacted by the sciences. He points out that, in addition to moving theology to better hermeneutically and contextually punctuate the various problems, the sciences have to suggest which aspects of dogma are still waiting to be more adequately explored, made explicit and understood.

An example of this is the new dogmatic horizons of the cosmic capitulation of Christ, the Incarnate Word. During the first part of the twentieth century, P. Teilhard de Chardin awakened this question to the theological conscience. Still today this theme needs to be deepened and consolidated.²⁶ Questions such as the following must be part of the theological task:

²⁶ Cfr. in this regard JORGE PAPANICOLAU, *Cristología cósmica*, Ágape, Buenos Aires 2005; IDEM, *Cristología cósmica* in L. FLORIO, S. ALONSO (eds.), *Nociones clave para una Ecología Integral*, DeCyR, City Bell 2024, 108-116 (<https://seminarioteologiafilosofiacienciaytecnologia.wordpress.com/2020/03/15/nociones-clave/>; consulted December 13, 2024).

What does Christ have to do with the cosmos, with the long history of life on the planet and with the hypothetical expressions of life in other parts of the universe? What is the relationship between Christ and the long religious history of *Homo sapiens*?

According to our author, the question of understanding the new creation in relation to the first is related to this cosmic capitivity of Christ. If there is a continuity between one and the other, a “*physical history of salvation*” must be presented.²⁷ This means that the history of salvation must be read within the horizons of human and religious history, but also within those of the physical and biological cosmos. In other words, it is not possible to maintain a double vision, in parallel, of salvific history and the history of the universe, to which we have access through scientific activity. An integrated vision is needed, even if the differences between one and the other are clearly pointed out. Tanzella-Nitti’s thought can be summarized by paraphrasing St. Irenaeus of Lyons in his polemic against the Gnostics: there are not two economies, but only one, to which we have access by different but complementary ways. The history of salvation is inserted in a physical and biological history of the universe.²⁸ This is nothing other than affirming that salvific history and creation constitute a unity, even if they can be distinguished.²⁹

²⁷ This is how our author defines it in: TANZELLA-NITTI, *Teologia della Rivelazione in contesto scientifico*, 519. The italics are the author’s; the translation is ours.

²⁸ Here again, one can refer to the intuition of P. Teilhard de Chardin, for whom there was a succession of phases in a single history, namely cosmogenesis, biogenesis, noogenesis and Christogenesis. Cfr. L. FLORIO, *Une réception inachevée L’apport de la pensée de Teilhard de Chardin à la théologie académique*, in *Colloque international New York - Poughkeepsie 2023, Pierre Teilhard de Chardin. La Messe sur le monde*. Le Centenaire, Saint-Léger Éditions, Paris 2024, 117-149 (expanded version in Spanish: *Teilhard de Chardin y la teología de la creación actual. Algunos elementos estructurales y conceptos vigentes*, «Razón y fe», vol. 288, n° 1463 [2023] 439-462).

²⁹ The binomial between salvation history and the history of the universe and life can be thought of in the key of redemption and creation (cfr. E.M. CONRADIE [ed.], *Creation and Salvation*. Vol 2: *A Companion on Recent Theological Movement*, LIT Verlag, Münster 2012). Likewise, another possible integration between the different accesses to reality is using the “paradigm” of the “Big History”, which synthesizes the accounts of the history of the universe, with the history of salvation (cfr. A. UDÍAS VALLINA, “La ‘Gran Historia’ [*Big History*] y el Antropoceno: dos nuevos enfoques del pasado y el presente”, «Razón y Fe», vol. 279, n° 1437 [2019] 72-73).

Tanzella-Nitti then addresses the question of doctrinal progress brought about by the use of the sciences by theology. He does so by means of J.H. Newman's criteria. What the Italian theologian intends to show is the existence of an important space of reflection for a vital incorporation of some results of scientific knowledge in theological knowledge. The objective is to strengthen the exercise of the mission entrusted by the Risen One to the Church: to proclaim in a credible way the Gospel of salvation, showing its significance for all human beings of all times.

IV. CONCLUSIONS

The work of Giuseppe Tanzella-Nitti highlights that the challenge of the sciences for theology is complex and arduous. It is a task that is not simply that of a generic dialogue between the sciences and religion(s), but a dynamic and complex link between the sciences, critically approached by epistemology, and theology, as a rational instance of biblical faith. This task seeks to achieve an integrated vision that can be called "theology of nature", "theology of the sciences" or even "theology-and-sciences".³⁰ It is a theology whose nature is configured as a complex interdisciplinary that integrates biblical faith – studied with the help of historical and literary sciences –, scientific theories, epistemologies, history of thought, etc.). Its purpose is to provide "an enriched vision of reality".³¹ This occurs when theology in its globality allows itself to be impacted by the challenge of scientific rationality, in an analogous way as it was by Greek philosophical rationality, or that of modern philosophical currents such as kantism, phenomenology, analytical philosophy, among others. The originality of the dialogue with the sciences lies in the fact that they focus on an empirical and mathematical method, from which a vision of the world is configured. This configures a task of added complexity to theology, traditionally linked to philosophical thought as a conceptual instrument for its systematization. However,

³⁰ See, in this regard, the proposal for a theology-and-science course involving the various disciplines with a historical perspective: L. GALLEN, *Una proposta: il programma di un corso su Teologia e Scienza*, «Quaerentibus. Teología y ciencias» 11 (2016) 3-36.

³¹ A. MCGRATH, *Una visión enriquecida de la realidad. El diálogo entre la teología y las ciencias naturales*, Sal Terrae-Comillas, Madrid 2019.

this is not a substitution but a complementation, that is, an integration of scientific reason within the theological task.

This spirit appears in the works of Tanzella-Nitti that we have analyzed. The author lets us glimpse in them his concern to find foundations for the novel task of introducing the complex scientific rationality in the theological task. The first of the texts we have chosen, a voice from the *Dizionario Interdisciplinare di Scienza e Fede*, is more focused on weeding out the terrain of the interaction between science and religion, according to the dictionary's program. Even so, he conceptualizes several intuitions that he will later develop within the framework of a more systematic theology. Indeed, it is in the second selected text where he incorporates contents and methods of the natural sciences into a treatise on fundamental theology. This is based on a theology of dynamic Revelation, as taught in the Dogmatic Constitution *Dei Verbum*. This Revelation is given to the Church to be communicated, but also to be deepened – homogeneously with its nucleus, as H. Newman pointed out – by means of contemplation, study and embodiment in its life. The great theological movements of the 19th and 20th centuries – the biblical, patristic, liturgical, theology of the cross, the renewal of Trinitarian theology, etc. – have made it possible today to practice a mature incorporation of an experimental science – also evaluated philosophically – making explicit its scope and limits.

The theological situation of these last decades allows the development of dialogue and integration of the sciences, without falling into scientism or concordism. On the contrary, this task is making it possible to expand theological knowledge thanks to the broadening of the vision of the universe and of life provided by the natural sciences. The need to continue with this work of introducing scientific contents and methods in the theological task is imperative in our present time, to the extent that the current language and worldviews are shaped by the scientific and technological language with ever greater depth.

GIUSEPPE TANZELLA-NITTI,
SCIENTIST AND THEOLOGIAN
A Bibliography 1980-2024¹,
Briefly Commented by the Guest Editors

BOOKS

Giuseppe Tanzella-Nitti has authored 16 books, co-authored 1 volume, and co-edited 2 works. These publications are divided into three groups: theological books, books on interdisciplinary topics and books in astrophysics. In the section about interdisciplinary topics, one mainly finds works about the relationships between science and theology, but also philosophical and epistemological contributions, especially on the notion of truth.

Theological Books

1. *Scientific Perspectives in Fundamental Theology*, Claremont Press, Claremont 2022, 485 pp.
2. *Teologia Fondamentale in contesto scientifico*, vol. IV: *Fede, Tradizione, Religioni*, [Fundamental Theology in Scientific Context, vol. IV: Faith, Tradition, Religions], Città Nuova, Roma 2022, 776 pp.
3. *Teologia Fondamentale in contesto scientifico*, vol. III: *Religione e Rivelazione*, [Fundamental Theology in Scientific Context, vol. III: Religion and Revelation], Città Nuova, Roma 2018, 734 pp.
4. *La Rivelazione e la sua Credibilità*, [Revelation and Its Credibility], Edusc, Roma 2016, 580 pp.
5. *Teologia Fondamentale in contesto scientifico*, vol. II: *La credibilità del cristianesimo*, [Fundamental Theology in Scientific Context, vol. II: The Credibility of Christianity], Città Nuova, Roma 2015, 814 pp.
6. *Teologia Fondamentale in contesto scientifico*, vol. I: *La Teologia fondamentale e la sua dimensione di Apologia*, [Fundamental Theology in Scientific Context, vol. I: Fundamental Theology and Its Apologetic Dimension], Città Nuova, Roma 2015, 683 pp.
7. *Lezioni di Teologia Fondamentale*, [Lectures on Fundamental Theology], Aracne, Roma 2007, 469 pp.
8. (ed. with G. MASPERO), *La verità della religione. La specificità cristiana in contesto*, [The Truth of Religion. Christian Specificity in Context], Cantagalli, Siena 2007, 270 pp.

¹Where the manuscript title is in a language other than English, the English translation of the text is provided in square brackets.

9. *Mistero trinitario ed economia della grazia. Il personalismo soprannaturale di M.Ĵ. Scheeben*, [Trinitarian Mystery and the Economy of Grace. M.J. Scheeben's Supernatural Personalism], Armando, Roma 1997, 334 pp.
10. (ed.), *La Teologia, annuncio e dialogo*, [Theology, Proclamation and Dialogue], Armando, Roma 1996, 191 pp.
11. *La S.S. Trinità e l'economia della nostra santificazione ne "I Misteri del Cristianesimo" di M.Ĵ. Scheeben*, [The Holy Trinity and the Economy of Our Sanctification in "The Mysteries of Christianity" by M.J. Scheeben], S.T.D., Roma 1991, 285 pp.

Books on Interdisciplinary Topics

12. (with A. STRUMIA) *Scienze, filosofia e teologia. Avvio al lavoro interdisciplinare*, [Science, Philosophy and Theology. Introduction to Interdisciplinary Work], Edusc, Roma 2014, 270 pp.
13. *Faith, Reason and the Natural Sciences. The Challenge of the Natural Sciences in the Work of Theologians*, The Davies Group, Aurora 2009, 271 pp.
14. *Filosofia e Rivelazione. Attese della ragione, sorprese dell'annuncio cristiano*, [Philosophy and Revelation. Expectations of Reason, Surprises of Christian Proclamation], San Paolo, Cinisello Balsamo 2008, 246 pp.
15. *Teologia e scienza. Le ragioni di un dialogo*, [Theology and Science. The Reasons for a Dialogue], Paoline, Milano 2003, 212 pp.
16. (ed. with A. STRUMIA), *Dizionario Interdisciplinare di Scienza e Fede. Cultura scientifica, filosofia e teologia*, [Interdisciplinary Dictionary of Science and Faith. Scientific Culture, Philosophy, and Theology], 2 vols., Urbaniana University Press-Città Nuova Editrice, Roma 2002, 2340 pp.

G. TANZELLA-NITTI is author of the following entries:

Introduzione, [Introduction], 9-14;
Antropico, Principio, [Anthropic Principle], 102-120;
Autonomia, [Autonomy], 153-168;
Cielo, [Heaven], 238-250;
Creazione, [Creation], 300-321;
Dio, [God], 404-424;
Extraterrestre, vita, [Extraterrestrial Life], 591-605;
Gesù-Cristo, Rivelazione e incarnazione del Logos, [Jesus Christ, Revelation and Incarnation of the *Logos*], 693-710;
Leggi naturali, [Natural Laws], 783-804;
Miracolo, [Miracle], 958-978;
Mistero, [Mystery], 978-990;
Panteismo, [Pantheism], 1063-1077;
Scienze naturali, utilizzo in teologia, [Natural Sciences, Use in Theology], 1273-1289;
Unità del sapere, [Unity of Knowledge], 1410-1431;
Università, [University], 1432-1449.

Portuguese transl.: *Enciclopédia Interdisciplinar de Ciência e Fé*, vol. 1, Editorial Verbo, Lisboa-São Paulo 2002, 713 pp.²

English transl.: *Interdisciplinary Encyclopaedia of Religion and Science* (ISSN 2037-2329)

G. TANZELLA-NITTI is author of the following entries:

Anthropic Principle, <http://www.inters.org/anthropic-principle> (DOI: 10.17421/2037-2329-2005-GT-1)

Autonomy, <http://www.inters.org/autonomy>, (DOI: 10.17421/2037-2329-2002-GT-2)

Book of Nature. Origin and Development of a Metaphor, <http://www.inters.org/book-of-nature>, (DOI: 10.17421/2037-2329-2019-GT-1)

Creation, <http://www.inters.org/creation>, (DOI: 10.17421/2037-2329-2002-GT-3)

Extraterrestrial Life, <http://www.inters.org/extraterrestrial-life>, DOI: 10.17421/2037-2329-2008-GT-1

God, Natural Knowledge of, <http://www.inters.org/God-natural-knowledge>, (DOI: 10.17421/2037-2329-2013-GT-1)

God, Notion of, <http://www.inters.org/God>, (DOI: 10.17421/2037-2329-2010-GT-1)

Jesus Christ. Incarnation and Doctrine of Logos, <http://www.inters.org/jesus-christ-logos>, (DOI: 10.17421/2037-2329-2008-GT-2)

Laws of Nature, <http://www.inters.org/laws-of-nature>, (DOI: 10.17421/2037-2329-2008-GT-3)

Magisterium of Catholic Church, <http://www.inters.org/magisterium-catholic-church>, (DOI: 10.17421/2037-2329-2002-MG-1)

Materialism, <http://www.inters.org/materialism>, (DOI: 10.17421/2037-2329-2008-GT-4)

Miracles, <http://www.inters.org/miracle>, (DOI: 10.17421/2037-2329-2002-GT-4)

Mystery, <http://www.inters.org/mystery>, (DOI: 10.17421/2037-2329-2002-GT-5)

Natural Sciences, in the Work of Theologians, <http://www.inters.org/natural-sciences>, (DOI: 10.17421/2037-2329-2008-GT-5)

Pantheism, <http://www.inters.org/pantheism>, (DOI: 10.17421/2037-2329-2002-GT-6)

Science and the Catholic Church's Mission, <http://www.inters.org/science-and-Catholic-Church-mission>, (DOI: 10.17421/2037-2329-2017-GT-1)

Sky, <http://www.inters.org/sky>, (DOI: 10.17421/2037-2329-2002-GT-7)

Unity of Knowledge, <http://www.inters.org/unity-of-knowledge>, (DOI: 10.17421/2037-2329-2002-GT-8)

University, <http://www.inters.org/university>, (DOI: 10.17421/2037-2329-2013-GT-2)

17. *Passione per la verità e responsabilità del sapere. Un'idea di università nel Magistero di Giovanni Paolo II*, [Passion for Truth and Responsibility for Knowledge. An Idea of the University in the Teachings of John Paul II], Piemme, Casale Monferrato 1998, 280 pp. (Spanish transl.: *Pasión por la verdad. La responsabilidad del saber en el pensamiento de Juan Pablo II*, Ediciones Universidad de Piura, Piura 2014, 284 pp.).

² Partial translation.

18. *Questions in Science and Religious Belief. The Roles of Faith and Science in answering the Cosmological Problem*, Pachart Publishing House, Tucson 1992, 257 pp.

Books in Astrophysics

19. (with G.G.C. PALUMBO and G. VETTOLANI), *A Catalogue of Radial Velocities of Galaxies*, Gordon and Breach, New York 1983, 575 pp.

ARTICLES AND BOOK CHAPTERS

Theology

Under this heading, contributions on theological topics are gathered together, in chronological order, starting with the most recent ones. The perspective is essentially the one of fundamental theology, and the most represented topics are: Creation, Christology, the *imago Dei* doctrine and Tradition. Religion and human progress are also present among the theological writings of Giuseppe Tanzella-Nitti.

1. *Intelligenza e io personale in prospettiva teologica: l'essere umano come immagine di Dio*, [Intelligence and Personal Self in Theological Perspective: the Human Being as the Image of God], in I. COLAGÈ, R. MONA (edd.), *Origins. Le grandi domande su cosmo, vita e intelligenza nella scienza, nella filosofia e nelle culture*, Sisri-Edusc, Roma 2024, 271-295.
2. *G. Il cosmo come creazione nella Rivelazione ebraico-cristiana*, [The Cosmos as Creation in Judaeo-Christian Revelation], in I. COLAGÈ, R. MONA (edd.), *Origins. Le grandi domande su cosmo, vita e intelligenza nella scienza, nella filosofia e nelle culture*, Sisri-Edusc, Roma 2024, 109-131.
3. *Blaise Pascal fra libertini e post-modernità. Sono le Pensées ancora attuali per la teologia fondamentale contemporanea?*, [Blaise Pascal between Libertines and Post-Modernity. Are the Pensées still Relevant for Contemporary Fundamental Theology?], «Studia Patavina» 70 (2023), 563-576.
4. *El dinamismo de la Tradición entre pasado y futuro*, [The Dynamism of Tradition between Past and Future], in J. ALONSO, M. BRUGAROLAS (edd.), *Quod accepi, tradidi. Palabra de verdad y evangelio del salvación. Homenaje al prof. César Izquierdo Urbina*, Eunsa, Pamplona 2023, 159-172.
5. *La questione della verità in prospettiva teologica*, [The Question of Truth in Theological Perspective], in G.M. ARRIGO, C. TAGLIAPIETRA (edd.), *Dove abita la verità? Riflessioni sul vero e sul falso nell'epoca contemporanea*, Sisri-Edusc, Roma 2023, 117-142.
6. *Progresso scientifico e promozione umana: una riflessione teologica sulla nozione di progresso*, [Scientific Progress and Human Advancement: a Theological Reflection on the Notion of Progress], «La Società» 29/5-6 (2020) 45-64.
7. *Il ruolo della religione e della filosofia nella comprensione del kerygma apostolico. Riflessioni teologico-fondamentali a partire dalla Fides et ratio*, [The Role of Religion and Philosophy in Understanding the Apostolic Kerygma. Fundamental Theological Reflections from Fides et ratio], «Forum, Supplement to Acta Philosophica» 4 (2018) 37-48.

8. *La "Laudato si'" e il vangelo della creazione*, ["Laudato si'" and the Gospel of Creation], in F. BRANCATO (ed.), *Economia ed etica: il dialogo necessario per il bene della casa comune*, Il Pozzo di Giacobbe, Catania 2017, («Quaderni di Sinaxis» 7), 31-47.
9. *La dimension cristologique de la nature et de l'histoire*, [The Cristological Dimension of Nature and History], in B. SOUCHARD, F. REVOL (dir.), *Réel voilé et Cosmos théophanique*, J. Vrin-Institute Interdisciplinaire d'Études Epistémologiques, Paris-Lyon 2015, 273-296.
10. *Mons. Álvaro del Portillo e la Facoltà di Teologia della Pontificia Università della Santa Croce*, [Mons. Álvaro del Portillo and the Faculty of Theology of the Pontifical University of the Holy Cross], «Annales Theologici» 29 (2015) 9-18.
11. *Figli di Dio nella Chiesa dei santi e dei martiri: la via agiografica nel contesto della teologia della credibilità e della nuova evangelizzazione*, [Sons of God in the Church of Saints and Martyrs: the Hagiophanic Way in the Context of the Theology of Credibility and the New Evangelization], in J. LÓPEZ DÍAZ (ed.), *San Josemaría e il pensiero teologico*, Edusc, Roma 2014, 151-170.
12. *Una immagine credibile di Dio. La rilettura della violenza nella Bibbia alla luce dell'evento di Gesù di Nazaret*, [A Credible Image of God. The Re-Reading of Violence in the Bible in Light of the Event of Jesus of Nazareth], «Annales Theologici» 28 (2014) 85-122.
13. *La psicologia umana di Gesù di Nazaret e il suo ruolo in una contemporanea Teologia della credibilità*, [The Human Psychology of Jesus of Nazareth and its Role in a Contemporary Theology of Credibility], «Annales Theologici» 27 (2013) 257-292.
14. *Blaise Pascal e il progetto apologetico delle Pensées (1662) a 350 anni dalla sua morte*, [Blaise Pascal and the Apologetic Project of the Pensées (1662) 350 Years after His Death], «Annales Theologici» 26 (2012) 20-50.
15. *La proposta apologetica di Maurice Blondel (1861-1949): Una rilettura del metodo dell'immanenza nel 150° della nascita*, [The Apologetic Proposal of Maurice Blondel (1861-1949): A Reinterpretation of the Method of Immanence in the 150th Anniversary of His Birth], «Annales Theologici» 25 (2011) 45-74.
16. *Proposte e modelli di teologia fondamentale nel XX secolo*, [Proposals and Models of Fundamental Theology in the 20th Century], «Annales Theologici» 24 (2010) 175-238.
17. *Il ruolo dei praeambula fidei in un itinerario teologico-fondamentale*, [The Role of Praeambula Fidei in a Theological-Fundamental Itinerary], in A. LIVI (ed.), *Premesse razionali delle fede. Teologi e filosofi a confronto sui praeambula fidei*, Lateran University Press, Roma 2009, 57-73.
18. *La dimensione apologetica della Teologia fondamentale. Una riflessione sul ruolo dei praeambula fidei*, [The Apologetic Dimension of Fundamental Theology. A Reflection on the Role of Praeambula Fidei], «Annales Theologici» 21 (2007) 11-60.
19. *Il cristianesimo fra universalità della ragione e universalità della religione*, [Christianity between Universality of Reason and Universality of Religion], in G. TANZELLA-NITTI, G. MASPERO (eds.), *La verità della religione. La specificità cristiana in contesto*, Cantagalli, Siena 2007, 173-202.

20. (with J. SÁNCHEZ CAÑIZARES) *La rivelazione di Dio nel creato nella teologia della rivelazione del XX secolo*, [God's Revelation in Creation in the Theology of Revelation of the 20th Century], «Annales Theologici» 20 (2006) 289-335.
21. *The Two Books prior to the Scientific Revolution*, «Annales Theologici» 18 (2004) 51-83, also published in «Perspectives on Science and Christian Faith» 57/3 (2005) 235-248.
22. *Quale futuro per il creato?*, [What Future for Creation?], in L. ANDREATTA (ed.), *Il creato, santuario di Dio*, Piemme, Casale Monferrato 2002, 191-199.
23. *L'enciclica Fides et ratio: alcune riflessioni di teologia fondamentale*, [The Encyclical *Fides et ratio*: Some Reflections on Fundamental Theology], «Acta Philosophica» 9 (2000) 87-109.
24. *Cristocentrismo e dialogo interreligioso. Riflessioni sul documento della CTI "Il cristianesimo e le religioni"*, [Christocentrism and Interreligious Dialogue. Reflections on the CTI Document "Christianity and Religions."], «Annales Theologici» 12 (1998) 113-129.
25. *Perfectus Deus, perfectus homo. Riflessioni sull'esemplarità del mistero dell'incarnazione del Verbo nell'insegnamento del Beato Josemaria Escrivá*, [*Perfectus Deus, Perfectus Homo*. Reflections on the Exemplarity of the Mystery of the Incarnation of the Word in the Teachings of Blessed Josemaría Escrivá], «Romana» 13 (1997) 360-381, also published in *Romana. Studi sull'Opus Dei e sul suo Fondatore*, Ares, Milano 1998, 259-293.
26. *La Teologia, discorso su Dio e annuncio del mistero*, [Theology: Discourse on God and Proclamation of the Mystery], «Annales Theologici» 10 (1996) 505-520.
27. *La teologia: come far dialogare la fede oggi*, [Theology: How to Foster Dialogue with Faith Today], in G. TANZELLA-NITTI (ed.), *La Teologia, annuncio e dialogo*, Armando, Roma 1996, 11-18.

Science & Theology/Religion, and Evangelization

The following group of contributions hinges on the relationships between science and theology or religion. Besides more “technical” scientific or theological topics addressed from an interdisciplinary perspective, one can envisage two key priorities in Giuseppe Tanzella-Nitti’s production. The first one responds to his conviction that the natural sciences may have a beneficial role in the development of fundamental theology as such. The second one is essentially addressed to evangelization, and specifically to develop a theology able to dialogue with the scientific culture to the advantage of the women and men of science themselves.

28. *Dialogue between Theology and Science. Present Challenges and Future Perspectives*, «Religions» 5 (2024), in press
29. *The Role of Theology in a University Curriculum*, «Church, Communication and Culture» 9 (2024), in press
30. *Pensiero scientifico e trasmissione della fede. Alcuni orientamenti per la catechesi*, [Scientific Thinking and the Transmission of Faith. Some Guidelines for Catechesis], «Orientamenti pastorali» 72 (2024) 41-50.
31. *La dimensione contestuale e interdisciplinare della teologia come diaconia all’evangelizzazione*, [The Contextual and Interdisciplinary Dimension of Theology as a Diakonia to Evangelization], «PATH» 23 (2024) 31-47.
32. *Plurality of Worlds and Christian Faith*, in V. BAKIROV, M. CAPACCIOLI, V. KAYDASH (eds.), *Are we alone in the universe? III Italy-Ukraine Scientific Meeting*, V.N. Karazin Kharkiv National University, Kharkiv 2022, 115-124.
33. *Cultura scientifica e domanda su Dio: contesti filosofici e nuove opportunità*, [Scientific Culture and the Question of God: Philosophical Contexts and New Opportunities], «PATH» 21 (2022) 137-154.
34. *Between Science and Religion: Angelo Secchi and his Time*, in I. CHINNICI, G. CONSOLMAGNO (edd.), *Angelo Secchi and Nineteenth Century Science. The Multidisciplinary Contributions of a Pioneer and Innovator*, Springer Nature, Cham 2021, 43-63.
35. *Teologia e scienza*, [Theology and Science], in O. AIME *et al.* (edd.), *Dizionario teologico interdisciplinare*, EDB, Bologna 2020, 687-692.
36. *Some Reflections on the Influence and Role of Scientific Thought in the Context of the New Evangelization*, in G. GIONTI, J.-B. KIKWAYA-ELUO (eds.), *The Vatican Observatory, Castel Gandolfo: 80th Anniversary Celebration*, Springer International, Cham 2018, 235-244.
37. *Physical Cosmology and Christian Theology of Creation*, in F. MERLINI, R. BERNARDINI (eds.), *The World and its Shadow, Eranos Yearbook 73: 2015-2016*, Daimon Verlag, Einsiedeln 2017, 538-562.
38. *Si può parlare di Dio nel contesto della scienza contemporanea?*, [Can We Talk about God in the Context of Contemporary Science?], «Scientia et Fides» 4 (2016) 9-26.

39. *Il miracolo e le scienze della natura. La teologia dell'azione divina nel dibattito interdisciplinare degli ultimi decenni*, [The Miracle and the Natural Sciences. The Theology of Divine Action in the Interdisciplinary Debate of Recent Decades], «Annales Theologici» 30 (2015) 429-470.
40. *Parlare di scienza a chi studia e predica la parola di Dio: il contributo culturale ed ecclesiale di Antonio Stoppani*, [Talking about Science to Those Who Study and Preach the Word of God: the Cultural and Ecclesial Contribution of Antonio Stoppani], in L. ALESSANDRINI, *Un geologo di fronte alla Bibbia. L'opera apologetica di Antonio Stoppani fra scienza e fede*, Edusc, Roma 2016, 5-12.
41. *Parlare di Dio all'uomo di scienza: il ruolo della cultura scientifica nell'annuncio del Vangelo*, [Talking about God to the Scientist: the Role of Scientific Culture in Proclaiming the Gospel], in J. FUNES, A. OMIZZOLO (eds.), *Esplorare l'universo, ultima delle periferie*, Queriniana, Brescia 2015, 199-224.
42. *Il magistero della Chiesa cattolica e la ricerca scientifica*, [The Magisterium of the Catholic Church and Scientific Research], in J. FUNES, A. OMIZZOLO (eds.), *Esplorare l'universo, ultima delle periferie*, Queriniana, Brescia 2015, 127-179.
43. *La visión de la cultura científica en el Vaticano II*, [The Vision of Scientific Culture in Vatican II], in A. ARANDA, M. LLUCH, J. HERRERA (eds.), *En torno al Vaticano II: claves históricas, doctrinales y pastorales*, Eunsa, Pamplona 2014, 479-493.
44. *La dimensione cristologica dell'intelligibilità del reale*, [The Christological Dimension of the Intelligibility of the Real], in S. RONDINARA (ed.), *L'intelligibilità del reale. Natura, uomo, macchina*, Sefir-Città Nuova, Roma 2013, 213-225.
45. *Il dialogo fra pensiero scientifico e teologia: Creative tension come aspetto del rapporto fra tradizione e innovazione*, [The Dialogue Between Scientific Thought and Theology: Creative Tension as an Aspect of the Relationship Between Tradition and Innovation], *Afterword*, in M. HELLER, *Tensione creativa. Saggi sulla scienza e sulla religione*, M. ALFANO, R. BUCCHERI (eds.), Akousmata, Ferrara 2012, 321-334.
46. *Teologia fondamentale e ragione scientifica: le istanze di una ragione contestuale*, [Fundamental Theology and Scientific Reason: the Instances of a Contextual Reason], in M. PÉREZ DE LABORDA (ed.), *Sapienza e libertà. Studi in onore di L. Clavell*, Edusc, Roma 2012, 421-434.
47. *Theologia physica? Razionalità scientifica e domanda su Dio*, [Theologia physica? Scientific Rationality and the God Question], «Hermeneutica» (2012) 37-54.
48. *Il coraggio dell'Intellectus fidei: le "lezioni carinziane" di Joseph Ratzinger su teologia della creazione e scienze naturali*, [The Courage of *Intellectus fidei*: Joseph Ratzinger's "Carinthian lectures" on Theology of Creation and Natural Sciences], *Introduzione*, in J. RATZINGER-BENEDETTO XVI, "Progetto di Dio. La creazione", Marcianum Press, Venezia 2012, 7-29.
49. *Religion and Science as Inclinations towards the Search for Global Meaning*, «Theology and Science» 10 (2012) 167-178.
50. *Giovanni Paolo II e Galileo Galilei*, [John Paul II and Galileo Galilei], «Annales Theologici» 24 (2010) 411-424.

51. *The Natural Sciences in the Work of Theologians: Is Scientific Knowledge Relevant to Theology?*, «Cultures et Foi» 17 (2009) 8-17.
52. *The Influence of Scientific World View on Theology: A Brief Assessment and Future Perspectives*, in G. AULETTA (ed.), *The Relationships Between Science and Philosophy: new Opportunities for a Fruitful Dialogue*, LEV, Città del Vaticano 2008, 131-154.
53. *Implicazioni filosofiche del paradigma evolutivo e teologia cristiana*, [Philosophical Implications of the Evolutionary Paradigm and Christian Theology], «Humanitas» 63 (2008) 443-453.
54. *Il ruolo delle leggi di natura nel dibattito fra teologia e pensiero scientifico*, [The Role of the Laws of Nature in the Debate between Theology and Scientific Thought], in S. MORIGGI, E. SINDONI (eds.), *Dio, la Natura e la Legge. God and the Laws of Nature*, Angelicum-Mondo X, Milano 2005, 27-36.
55. *La creación del universo: filosofía, ciencia y teología*, [The Creation of the Universe: Philosophy, Science, and Theology], in H. VELÁZQUEZ FERNÁNDEZ (ed.), *Origen, naturaleza y conocimiento del Universo. Un acercamiento interdisciplinar*, Cuadernos de Anuario Filosófico, Servicio de Publicaciones de la Universidad de Navarra, Pamplona 2005, 113-151.
56. *Pluralità dei mondi e teologia*, [Plurality of Worlds and Theology], «Giornale di Astronomia» 30/4 (2004) 10-12.
57. *Il rapporto fra Dio e natura sullo sfondo del pensiero scientifico: alcuni nodi storici ed epistemologici*, [The Relationship between God and Nature against the Background of Scientific Thought: Some Historical and Epistemological Issues], in G. CICHESE, S. RONDINARA (eds.), *L'uomo e il cosmo tra Rivelazione e scienza*, Lateran University Press, Roma 2003, 45-63.
58. *Il dialogo tra sapere scientifico e teologia: un breve status quaestionis*, [The Dialogue between Scientific Knowledge and Theology. a Brief *Status Quaestionis*], in A. REALE, A. SCAFATI (eds.), *Ragione e Rivelazione*, Lombardo Editore, Roma 2003, 1-15.
59. *Il dialogo fra cultura scientifica e teologia. Riflessioni sull'esperienza di un "Dizionario Interdisciplinare di Scienza e Fede"*, [Dialogue between Scientific Culture and Theology. Reflections on the Experience of an "Interdisciplinary Dictionary of Science and Faith"], «PATH» 1 (2002) 371-379.
60. *The Book of Nature and the God of Scientists according to the Encyclical "Fides et ratio"*, in *The Human Search for Truth: Philosophy, Science, Faith. The Outlook for the Third Millennium*, St. Joseph's University Press, Philadelphia 2001, 82-90.
61. *Il confronto fra teologia e scienza*, [The Debate Between Theology and Science], in SERVIZIO NAZIONALE PER IL PROGETTO CULTURALE DELLA CEI (ed.), *Libertà della fede e mutamenti culturali*, EDB, Bologna 2000, 105-110.
62. *La presenza delle scienze naturali nel lavoro teologico*, [The Presence of Natural Sciences in Theological Work], in P. CODA, R. PRESILLA (eds.), *Interpretazioni del reale. Teologia, filosofia e scienze in dialogo*, Pontificia Università Lateranense-Mursia, Roma 2000, 171-184.

63. *La relación entre filosofía y teología en M.J. Scheeben. Desde el modelo de la ancillaridad hacia una analogía encarnacionista*, [The Relationship between Philosophy and Theology in M.J. Scheeben. From the Model of Ancillarity towards an Incarnationist Analogy], in J. MORALES *et al.* (dir.), *Cristo y el Dios de los cristianos. Hacia una comprensión actual de la teología*, Servicio de Publicaciones de la Universidad de Navarra, Pamplona 1998, 333-339.
64. *Cosmologia e domanda su Dio: più vicine la scienza e la teologia?*, [Cosmology and the Question of God: Are Science and Theology Closer?], «Nuova Civiltà delle Macchine» 15 (1997) 287-296.
65. *Il significato del discorso su Dio nel contesto scientifico-culturale odierno*, [The Significance of Discourse on God in Today's Scientific-Cultural Context], in G. TANZELLA-NITTI (ed.), *La Teologia, annuncio e dialogo*, Armando, Roma 1996, 61-82.
66. *The Observation of the Cosmos and the Natural Knowledge of God in Judaeo-Christian Revelation. From the Cosmological Problem to the Cosmological Argument*, «Vistas in Astronomy» 39 (1995) 581-590.
67. *Nature as Creation*, «Philosophy in Science» 6 (1995) 77-95.
68. *Culture Scientifique et Foi Chrétienne*, [Scientific Culture and Christian Faith], in P. POUPARD (éd.), *Après Galilée: Science et Foi, nouveau Dialogue*, Desclée de Brouwer, Paris 1994, 215-243 (tr. it.: *Cultura scientifica e fede cristiana*, in P. POUPARD (ed.), *La nuova immagine del mondo. Il dialogo tra scienza e fede dopo Galileo*, Piemme, Casale Monferrato 1996, 101-136).
69. *Origins, Time and Complexity: A Comment on the Relation between Christian Theology of Creation and Contemporary Cosmology*, in G.V. COYNE, K. SCHMITZ-MOORMANN (eds.), *Origins, Time, Complexity. II. Proceedings of the Fourth European Conference on Science and Theology*, Labor et Fides, Geneva 1994, 26-36.
70. *Cosmologia e domande ultime: commenti sul confronto fra evoluzione del cosmo e teologia cristiana della creazione*, [Cosmology and Ultimate Questions: Comments on the Comparison between Evolution of the Cosmos and Christian Theology of Creation], «Giornale di Astronomia» 17/3-4 (1991) 93-98.
71. *Cultura scientifica e rivelazione cristiana*, [Scientific Culture and Christian Revelation], «Annales Theologici» 8 (1994) 133-168.

Epistemology, Unity of Knowledge and Scientific Humanism

Building a fruitful dialogue between science and theology – and, more generally, between science and faith – requires specific epistemological tools and attitudes. Not by chance, Giuseppe Tanzella-Nitti often engages with epistemological topics, as well as with aspects of the philosophy of science and of nature. The notion of “unity of knowledge” is pivotal for such an epistemological outlook. Moreover, the *personal* dimensions of scientific work – what Tanzella-Nitti labels, following Enrico Cantore, “scientific humanism” – are the existential ground upon which the science-and-theology dialogue can be fruitfully built. In the section, works on these topics are gathered.

72. *Congetture, previsioni e risultati in astronomia, astrofisica e cosmologia*, [Conjectures, Predictions and Results in Astronomy, Astrophysics and Cosmology], in F. GIUDICE (ed.), *Capire e comunicare la scienza*, Vita e Pensiero, Milano 2024, 33-51.
73. *Interdisciplinarietà e unità del sapere. L'esperienza di recenti progetti di formazione e di didattica*, [Interdisciplinarity and Unity of Knowledge. The Experience of Recent Training and Teaching Projects], «Dynamis. Rivista di filosofia e pratiche educative» 5/2 (2023) 81-95.
74. *Tommaso d'Aquino e il pensiero scientifico contemporaneo*, [Thomas Aquinas and Contemporary Scientific Thought], in S.-T. BONINO, L.F. TUNINETTI (eds.), *Vetera Novis Augere. Le risorse della tradizione tomista nel contesto attuale. I. Bilancio e prospettive*, Urbaniana University Press, Roma 2023, 151-179.
75. *Foreword*, in A. GALLIPPI, *L'astronomo poeta. Vicende, scoperte e intuizioni di Ruggero Boscovich*, Marcianum Press, Venezia 2023, 15-20.
76. *Un modo nuovo di guardare l'attività scientifica. L'eredità intellettuale di Enrico Cantore*, [A New Way of Looking at Scientific Activity. The Intellectual Legacy of Enrico Cantore], in C. TAGLIAPIETRA (ed.), *Enrico Cantore, Scienza, Umanesimo e mistero di Cristo. Raccolta di scritti (1956-2002)*, Sisri-Edusc, Roma 2023, 7-23.
77. *Presentation*, in G. TANZELLA-NITTI, I. COLAGÈ (eds.), *Creativity: Artificial, Animal, and Human Intelligence*, «Acta Philosophica» 32 (2023) 11-16.
78. *Natura e leggi di natura fra pensiero scientifico e dibattito contemporaneo*, [Nature and Laws of Nature between Scientific Thought and Contemporary Debate], in F. MACERI (ed.), *La legge morale naturale. Prospettive odierne tra teologia e scienza*, Pfts University Press, Cagliari 2022, 45-70.
79. *Fede e cultura a partire dalla Gaudium et spes. Spunti per un lavoro educativo di ispirazione cristiana*, [Faith and Culture from *Gaudium et spes*. Ideas for Christian Inspired Educational Work], in CENTRO STUDI PER LA SCUOLA CATTOLICA (ed.), *Chiamati a insegnare. XXII Rapporto della scuola cattolica in Italia*, Scholé, Roma 2020, 13-31.
80. *La teologia incontra gli altri saperi. Interdisciplinarietà e dialogo nella domanda su Dio*, [Theology Meets Other Knowledge. Interdisciplinarity and Dialogue in the Question of God], in I. COLAGÈ (ed.), *Allargare gli orizzonti del pensiero. Scommettere sulla cultura tra specializzazione e interdisciplinarietà*, Orthotes, Napoli-Salerno 2020, 113-128.

81. *Foreword*, in G. GENTA, P. RIBERI, *Oltre l'orizzonte. Dalle caverne allo spazio: come la tecnologia ci ha reso umani*, Lindau, Torino 2019, 19-26.
82. *La fede dinanzi all'affermarsi delle scienze in Europa*, [Faith in the Face of the Rise of the Sciences in Europe], «Lateranum» 85 (2019) 105-108.
83. (with S. FULLER) *A debate between Steve Fuller and Giuseppe Tanzella-Nitti on 'scientific progress, human progress and Christian theology'*, «Church, Communication and Culture» 4/2 (2019) 123-136.
84. *Il contributo di Tommaso d'Aquino alla comprensione del rapporto fra scienze naturali e teologia della creazione*, [Thomas Aquinas' Contribution to Understanding the Relationship between Natural Science and Creation Theology], Doctor Communis, LEV, Città del Vaticano 2018, 137-154.
85. *Progresso scientifico e progresso umano. Prospettive filosofiche e teologiche*, [Scientific Progress and Human Progress. Philosophical and Theological Perspectives], in S. RONDINARA (ed.), *La scienza tra arte, comunicazione e progresso*, Città Nuova, Roma 2017, 265-283.
86. *Il ruolo della teologia nell'università: il dibattito dell'epoca moderna e le prospettive odierne*, [The Role of Theology in the University: the Debate of the Modern Era and Today's Perspectives], in J. LEAL, M. MIRA (edd.), *L'insegnamento superiore nella storia della Chiesa: scuole, maestri e metodi*, Edusc, Roma 2016, 523-538.
87. *Foreword*, in V. ORLANDO, *Contro il principio gnostico. La libertà del vivente in Hans Jonas*, Aracne, Roma 2014.
88. *Unity of Science*, in R.L. FASTIGGI (ed.), *New Catholic Encyclopedia Supplement 2012-13: Ethics and Philosophy. 4 vols.*, Gale, Detroit 2013, vol. IV, 841-843.
89. *Foreword*, M. DI BERNARDO, *I sentieri evolutivi della complessità biologica nell'opera di S.A. Kauffman*, Mimesis, Milano-Udine 2011, 11-15.
90. *Pensare la tecnologia in prospettiva teologica: esiste un umanesimo scientifico?*, [Thinking about Technology in Theological Perspective: Is There a Scientific Humanism?], in P. BARROTTA, G.O. LONGO, M. NEGROTTI (eds.), *Scienza, tecnologia e valori morali: quale futuro? Studi in onore di Francesco Barone*, Armando, Roma 2011, 201-220.
91. *150° dell'Unità di Italia e cultura cattolica: il ruolo dei sacerdoti impegnati nelle scienze e nella promozione sociale nel Piemonte del XIX secolo*, [150th Anniversary of the Unification of Italy and Catholic Culture: the Role of Priests Engaged in Science and Social Advancement in Piedmont in 19th Century], in SERVIZIO NAZIONALE PER IL PROGETTO CULTURALE DELLA CEI (ed.), *Nei 150 anni dell'Unità d'Italia. Tradizione e progetto*, EDB, Bologna 2011, 181-186.
92. *Darwinismo filosofico e darwinismo biologico*, [Philosophical Darwinism and Biological Darwinism], in COMITATO PER IL PROGETTO CULTURALE DELLA CEI (ed.), *Dio oggi. Con lui o senza di lui cambia tutto. I dibattiti*, Cantagalli, Siena 2010, 191-195.
93. *Assenso e conoscenza certa in materia di religione secondo l'analisi di A Grammar of Assent di J.H. Newman*, [Assent and Certain Knowledge in Matters of Religion According to the Analysis of J.H. Newman's *A Grammar of Assent*], in G. GOISIS *et al.* (eds.), *Metafisica, persona e Cristianesimo. Scritti in onore di Vittorio Possenti*, Armando, Roma 2010, 537-551.

94. *La dimensione filiale dell'essere. Spunti per una rieducazione metafisica*, [The Filial Dimension of Being. Suggestions for a Metaphysical Reeducation], in P. VALVO (ed.), *Quale scienza per quale uomo. La sfida della biopolitica*, Cantagalli, Siena 2010, 123-125.
95. *I fondamenti filosofici dell'attività scientifica*, [The Philosophical Foundations of Scientific Activity], in R. PRESILLA, S. RONDINARA (eds.), *Scienze fisiche e matematiche: istanze epistemologiche ed ontologiche*, Città Nuova, Roma 2010, 161-181.
96. *La unidad de la verdad en el acceso a Dios: ciencia, razón y fe*, [The Unity of Truth in the Access to God: Science, Reason and Faith], «Scripta Theologica» 41 (2009) 409-424. (Italian transl.: *L'unità dell'accesso alla verità nella Fides et ratio: quale ruolo per il pensiero scientifico?*, «Annales Theologici» 23 (2009) 377-388).
97. *Riflessioni su probabilità, credibilità e testimonianza*, [Reflections on Probability, Credibility and Testimony], «Nuova Civiltà delle macchine» 27 (2009) 90-100.
98. *La dinamica di fede e ragione nella conoscenza naturale di Dio*, [The Dynamics of Faith and Reason in the Natural Knowledge of God], in P. LARREY (ed.), *Per una filosofia del Senso Comune. Studi in onore di Antonio Livi*, Italianova Editrice, Milano 2009, 111-127.
99. *La persona, soggetto dell'impresa tecnico-scientifica*, [The Person, Subject of the Scientific-Technical Enterprise], «Paradoxa» 3/1 (2009) 96-109 (Spanish transl.: *La persona, sujeto del quehacer técnicocientífico*, «Mercurio Peruano» 523 (2010) 162-174).
100. *Rivalutare l'umano nella scienza e non contro la scienza*, [Reassessing the Human in Science and not Against Science], in SERVIZIO NAZIONALE PER IL PROGETTO CULTURALE DELLA CEI (ed.), *La ragione, le scienze e il futuro delle civiltà, VIII Forum del Progetto Culturale*, EDB, Bologna 2008, 351-355.
101. *In Search for the Unity of Knowledge: Building Unity inside the Subject*, «Annales Theologici» 20 (2006) 407-417.
102. *La dottrina tomista della causalità e la filosofia della creazione. Un approccio interdisciplinare in dialogo con le scienze*, [The Thomist Doctrine of Causality and the Philosophy of Creation. An Interdisciplinary Approach in Dialogue with Sciences], in A. STRUMIA (ed.), *I fondamenti logici e ontologici della scienza. Analogia e causalità*, Cantagalli, Siena 2006, 83-109.
103. *La teología como ciencia*, [Theology as a Science], in C. IZQUIERDO (dir.), *Diccionario de Teología*, Eunsa, Pamplona 2006, 946-952.
104. *Unidad del saber y unidad del sujeto*, [Unity of Knowledge and Unity of the Subject], in H. VELÁZQUEZ FERNÁNDEZ (ed.), *Origen, naturaleza y conocimiento del Universo. Un acercamiento interdisciplinar*, Cuadernos de Anuario Filosófico, Servicio de Publicaciones de la Universidad de Navarra, Pamplona 2005, 15-24.
105. *La dimensione personalista della verità e il sapere scientifico*, [The Personalist Dimension of Truth and the Scientific Knowledge], in V. POSSENTI (ed.), *Ragione e Verità*, Armando, Roma 2005, 101-121.
106. (with L. GIACARDI) *Scienza, fede e divulgazione*, [Science, Faith and Outreach], in L. GIACARDI (ed.), *Francesco Faà di Bruno. Ricerca scientifica, insegnamento e divulgazione*, Centro di Studi per la storia dell'Università di Torino, Editore Deputazione subalpina di storia patria, Torino 2004, 273-306.

107. *L'ontologia di Tommaso d'Aquino e le scienze naturali*, [Aquinas' Ontology and Natural Sciences], «Acta Philosophica», 13 (2004) 137-155, also published as: *Prospettive ontologiche e sapere scientifico. La visione di Tommaso d'Aquino*, [Ontological Perspectives and Scientific Knowledge: The Vision of Thomas Aquinas], in P. CODA (ed.), *La questione ontologica tra scienza e fede*, Lateran University Press, Roma 2004, («Quaderni del Sefir» 6), 179-204.
108. *Trasmissione della fede, trasmissione della cultura: quale ruolo per la famiglia cristiana?*, [Transmission of Faith, Transmission of Culture: What Role for the Christian Family?], in SERVIZIO NAZIONALE PER IL PROGETTO CULTURALE DELLA CEI (ed.), *Di generazione in generazione. La difficile costruzione del futuro, Atti del V Forum della CEI*, EDB, Bologna 2004, 221-226.
109. *Razionalità tecnologica e volontà di dominio: il cristianesimo ha desacralizzato il mondo?*, [Technological Rationality and the Will to Dominate: Has Christianity Desacralized the World?], in C. SINISCALCHI (ed.), *Uomini o Macchine? Il valore della vita e il potere della tecnologia nella cultura, nella comunicazione sociale e nel cinema del Terzo Millennio*, Ente dello Spettacolo Editore, Roma 2002, 123-130.
110. *Unità del sapere e unità della persona: c'è ancora un campus nell'università?*, [Unity of Knowledge and Unity of the Person: Is There Still a Campus in the University?], in F. FACCHINI (ed.), *Scienza e conoscenza: verso un nuovo umanesimo*, Editrice Compositori, Bologna 2000, 193-204.
111. *Le rivoluzioni in Teologia e nel pensiero scientifico*, [Revolutions in Theology and in Scientific Thought], «Giornale di Astronomia» 26/2 (2000) 16-18.
112. *Un'idea di università*, [An Idea of the University], in G. MOTTINI (ed.), *Medical Humanities. Le scienze umane in medicina*, Società Editrice Universo, Roma 1999, 207-220.
113. *Le rôle des sciences naturelles dans le travail du théologien*, [The role of the Natural Sciences in the Work of the Theologian], «Revue des Questions Scientifiques» 170 (1999) 25-39.
114. *Visione realista dell'universo e teologia della creazione*, [Realist View of the Universe and Theology of Creation], «Giornale di Astronomia» 25/4 (1999) 14-20.
115. *La natura e la missione dell'università nell'insegnamento di Giovanni Paolo II*, [The Nature and Mission of the University in the Teaching of John Paul II], in E. KACZYNSKI (ed.), *Fede di studioso e obbedienza di pastore. Atti del Convegno nel 50° del dottorato di Karol Wójtyła e 20° del Pontificato di Giovanni Paolo II*, Millennium, Roma 1999, 277-302, also published in «Vita e Pensiero» 82 (1999) 643-663.
116. *Filosofia, Scienza e Teologia (a proposito della Fides et ratio)*, [Philosophy, Science and Theology (about Fides et ratio)], in A. LIVI (ed.), *Dal fenomeno al fondamento*, Edizioni Romane di Cultura, Roma 1998, 19-27.
117. *Sapere di non sapere. A proposito di un saggio di N. Fisher*, [Knowing That You Don't Know: On an Essay by N. Fisher], «Annales Theologici» 12 (1998) 193-207.

118. *Scienze della comunicazione e Rivelazione cristiana: riflessioni sul ruolo della teologia*, [Communication Sciences and Christian Revelation: Reflections on the Role of Theology], in D. CONTRERAS (ed.), *Chiesa e comunicazione: metodi, valori, professionalità*, LEV, Città del Vaticano 1998, 27-44 (tr. sp.: *Ciencias de la comunicación y revelación cristiana: reflexiones sobre el rol de la teología*, «Annales Theologici» 20 (2006) 149-166).
119. *The Aristotelian-Thomistic Concept of Nature and the Contemporary Scientific Debate on the Meaning of Natural Laws*, «Acta Philosophica» 6 (1997) 237-264.
120. *The Relevance of the Aristotelian-Thomistic Concept of Nature to the Contemporary Debate between Science and Theology*, «Annales Theologici» 9 (1995) 107-125.

Astrophysics

Under this heading, the early strictly scientific works by Giuseppe Tanzella-Nitti are listed.

121. (with P. FONTANELLI) *A useful list of redshift calibrators*, «Astronomy and Astrophysics Supplement Series» 60 (1985) 343-347.
122. (with G. PICCHIO) *The Redshift of Double Galaxies*, «Astronomy and Astrophysics» 142 (1985) 21-30.
123. *Dynamical environment and reliability of redshift measurements in statistical studies of binary galaxies*, in F. MARDIROSIAN, G. GIURICIN, M. MEZZETTI (eds.), *Clusters and Groups of Galaxies. International Meeting Held in Trieste Italy, September 13-16, 1983*, D. Reidel, Dordrecht 1984, 605-606.
124. *Radial velocities of Galaxies: some considerations on the comparison between radio and optical data*, «Astronomy and Astrophysics Supplement Series» 58 (1984) 549-557.
125. *Quasars 20 anni dopo*, [Quasars 20 Years Later], «Coelum» 51 (1983) 305-326; 52 (1984) 1-16, 65-84, 137-150.
126. (with G.G.C. PALUMBO and G. VETTOLANI) *Description of a Catalogue of Radial Velocities of Galaxies*, in D. GERBAL, A. MAZURE (eds.), *Clustering in the Universe, Proceedings of a Colloquium, held at Meudon Observatory, 1982*, Editions Frontières, Gif-sur-Yvette 1983, 205-210.
127. (with G.G.C. PALUMBO and G. VETTOLANI) *Catalogue of Radial Velocities of Galaxies*, in G.O. ABELL, G. CHINCARINI (eds.), *Early Evolution of the Universe and its Present Structure. Proceedings of IAU Symposium no. 104*, D. Reidel, Dordrecht 1984, 177.
128. *La misura del redshift e la distribuzione delle galassie*, [The Measurement of Redshift and the Galaxy Distribution], «Orione» 3 (1983) 330-341.
129. *L'universo rivisitato*, [Universe Revisited], «Orione» 3 (1982) 91-106.
130. (with G. GRUEFF, C. KOTANJI, P. SCHIAVO-CAMPO, and M. VIGOTTI) *Structure and Position Measurements at 5 GHz of Radiogalaxies selected from the B2 Catalogue*, «Astronomy and Astrophysics Supplement Series» 44 (1981) 241-263.

131. *Studio della relazione diametro-redshift per le radiogalassie*, [Study of the Diameter-Redshift Relation for Radiogalaxies], «Bollettino della Società Astronomica Italiana», suppl. 3, «Giornale di Astronomia» 7 (1980).
132. (with G. VETTOLANI and G. ZAMORANI) *Simulazione di curve di rotazione di galassie in presenza di aloni massivi*, [Simulation of Galaxy Rotation Curves in the Presence of Massive Halos], «Bollettino della Società Astronomica Italiana» suppl. 2, «Giornale di Astronomia» 6 (1980) 265-266.

RECENSIONI

M. FERRARI, *Venga il tuo Regno. Dalla tirannia dell'istante alla pienezza del tempo*, Cittadella, Assisi 2022, 323 pp.

Tra le principali caratteristiche della nostra epoca sicuramente spicca la velocità. Una macchina più veloce, una connessione internet più rapida, una soluzione istantanea... sono *slogan* pubblicitari che ci attirano ad acquistare prodotti che renderanno più facile la vita perché ridurranno la nostra attesa. Il tempo infatti si rivela il vero bene scarso, più dell'acqua, del cibo, dei soldi: possiamo acquistare tutti questi beni, ma chi può ridarci il tempo che è trascorso? Questa frenetica corsa ha però un costo, come dimostra l'incidenza sempre più alta dei diversi disturbi d'ansia. Inoltre, il desiderio frenetico di sfruttare al massimo il presente rischia di farci perdere la prospettiva dell'eternità alla quale siamo chiamati. Occorre quindi una riflessione sul tempo, che per un cristiano deve includere una prospettiva teologica e concretamente escatologica.

È ciò che si propone in questo libro Michele Ferrari, sacerdote della diocesi di Roma, dottore in Teologia morale presso l'Accademia Alfonsiana e, attualmente, professore di Teologia morale fondamentale presso l'Istituto *Ecclesia Mater* nella sede della Pontificia Università Lateranense, oltre che cappellano della stessa Università.

Dopo una breve Prefazione (pp. 5-6) firmata dal prof. Mauro Cozzoli, già nell'Introduzione (pp. 9-21) l'autore denuncia la «tirannia dell'istante» (p. 13) propria della società postmoderna, che riduce il tempo al presente e inevitabilmente lo impoverisce. Questo ha importanti conseguenze sia dal punto di vista umano che spirituale e più concretamente morale: incapacità di progettare il futuro perché non si intravede un fine, un obiettivo, un punto di arrivo. Insomma, il *chronos* (il quantitativo succedersi degli eventi) ha spodestato il *kairos* (il “tempo per”, un momento opportuno per una certa operazione).

Il libro è articolato in quattro capitoli che seguono una linea ascendente, dall'umano al divino, dalla vita presente alla vita eterna.

Il primo capitolo, «La tirannia dell'attimo presente» (pp. 23-77) è, possiamo dire, la *pars destruens* del volume, in quanto presenta una descrizione critica della concezione del tempo nella società attuale, approfondendone le radici storiche dal punto di vista sociologico e filosofico e, in misura minore, psicologico. Per Ferrari, la fiducia nella ragione propria dell'Illuminismo portò alla fede in un futuro che doveva essere migliore del passato e del presente, spingendo l'uomo ad accelerarne l'arrivo al fine di raggiungere una sorta di salvezza, seppure intramondana: alla velocità si accompagnavano una narrativa e un ottimismo che davano senso a un progetto vitale. Nella postmodernità, con la caduta della “dea ragione”, è sopraggiunta la crisi del progresso e della storia, la decostruzione nelle narrazioni, la dissoluzione delle certezze universali, la crescita della complessità in tutti gli aspetti della vita, con una perdita della visione lineare, unitaria e sintetica dell'esistenza umana, ormai fissata in un'unica dimensione: un presente privo di senso. Il tempo è ridotto a un bene di consumo scarso, preda delle tecnologie che promettono di aumentare la velocità. Paradossalmente, l'uomo sente sempre più la schiavitù delle scadenze e la mancanza di tempo, frutto di una pretesa eccessiva nei suoi confronti e, ancor di più, una mancanza di riflessione sul perché del movimento. In assenza di un obiettivo, infatti, il tempo diventa insoddisfacente, mera

ripetizione dell'identico, il che porta al materialismo, al disorientamento, allo sradicamento, alla mancanza di identità, alla solitudine e alla stagnazione. Siccome il passato non ha più niente da dire e il futuro è privo di senso, non hanno senso neppure gli impegni a lungo termine, i legami, la vocazione, la fedeltà, la coerenza, la responsabilità, l'atteggiamento contemplativo. Il presente invece acquisisce un ruolo egemonico, ma è visto come un succedersi di attimi, una linea formata da momenti effimeri e superficiali in cui si cerca un'eccitazione sempre più forte che aiuti a dimenticare l'istante precedente.

La *pars construens* del libro comincia nel secondo capitolo, intitolato «Il santuario del Re» (pp. 79-145), in cui si scruta l'Antico Testamento alla ricerca del senso del tempo che aveva il popolo di Israele. Ferrari sostiene che la Bibbia scardina la visione del tempo come un eterno ritorno mitologico, per introdurre una concezione lineare della storia. Questo cambiamento permette l'introduzione dell'etica, perché l'uomo non è più visto come un insignificante elemento in balia del fato, ma è chiamato ad essere un libero e responsabile costruttore del futuro desiderato da Dio. Inoltre, Yahweh non è un mero programmatore iniziale né uno spettatore passivo degli eventi umani, ma si manifesta come il Signore della storia, nella quale interviene continuamente per guidarla: Egli è il Signore non in senso statico (su un territorio sempre limitato) ma dinamico: Egli «regna in eterno e per sempre» (Es 15,18). L'autore si ferma sul senso delle feste ebraiche, specie dello *shabbàt*, che non sono il semplice ricordo di un passato remoto ma la sua attualizzazione: ognuna di esse è, a suo modo, «il giorno fatto dal Signore» (Sal 118,24), che rende presente il momento salvifico. Dio continua a guidare il suo popolo e a salvarlo anche oggi e non smetterà mai di farlo: il suo regno ha una dimensione escatologica e piena di speranza. Il tempo è quindi il *locus* della salvezza offerta da Dio, il che ricompona la scissura tra *chronos* e *kairos* e richiede al credente una risposta grata e un impegno a realizzare il progetto divino.

Nel terzo capitolo, «Il Re dei secoli» (pp. 147-208), si passa dall'Antico al Nuovo Testamento. L'ingresso di Cristo nella storia umana viene presentato come il compimento del tempo (cfr. Gal 4,4), perché egli è l'*escathon* in persona; in lui Dio ha donato in modo definitivo tutto ciò che era stato promesso in precedenza. Gesù è l'elemento ultimo e insuperabile della storia, che colma e trascende il tempo e lo spazio per raggiungere ogni storia di ogni luogo e portarla verso la sua definitiva perfezione. Ferrari si sofferma sul concetto di Regno di Dio nella doppia prospettiva escatologica e presente, perché «il regno di Dio è in mezzo a voi» (Lc 10,25). Il Regno, infatti, è la Persona di Gesù, che non soltanto promette una salvezza futura ma la porta *oggi* in se stesso. Questa offerta richiede da parte del discepolo una libera decisione etica di seguirlo radicalmente. L'Incarnazione implica un nuovo modo di guardare la storia, che perfeziona quello veterotestamentario: il tempo del Signore, secondo il quarto vangelo, si realizza pienamente nella sua passione, morte e risurrezione, che rappresenta il culmine della sua vita. Dopo tale evento la morte non ha più l'ultima parola sull'uomo, e a colui che vuole imitare il Signore è dato il motivo più profondo di speranza.

Il quarto e ultimo capitolo, intitolato «Venga il tuo Regno» (pp. 209-272), è quello più specificamente morale. Il suo obiettivo esplicito è suscitare nel cristiano una rinnovata valorizzazione della dimensione temporale della sua esistenza. Vivere il tempo con la coscienza che Cristo ne è il Signore, che ha stabilito proprio in esso il suo

Regno e che ci chiama alla vita eterna, dà senso all'esistenza umana e porta a sapersi parte attiva della storia della salvezza e ad impegnarsi liberamente nella costruzione di questo Regno; anzi, l'uomo stesso, immagine di Dio, partecipa della sua signoria sulla creazione e si immette nell'eternità. Cristo inoltre è anche presente all'interno dell'uomo, nella sua coscienza, iscrive la legge nel suo cuore e dona la grazia che ne permette il compimento; così il tempo di Gesù diventa anche il tempo del discepolo. La vita morale dell'uomo viene presentata come la santificazione del tempo, ma non più tramite le opere della legge, bensì mediante l'unione e la configurazione con Cristo fino ad avere i suoi stessi sentimenti (cfr. Fil 2,5). Inoltre, il peccato viene considerato come una disgregazione del tempo, una perdita dell'unità interiore, mentre l'assetto temporale ciclico è visto come una chiusa ed egolatrica autoreferenzialità, in cui si ripetono azioni vuote e prive di speranza. La grazia invece risana il tempo e gli ridona un senso unitario e lineare, indirizzato alla salvezza, il che permette anche la stabilità degli *habitus* e quindi la crescita nelle virtù, sia umane che teologali.

Il libro termina con una Conclusione (pp. 273-280), che raccoglie organicamente i principali argomenti trattati, e con una Bibliografia (pp. 281-319) che presenta in modo ben organizzato l'ampissimo elenco di fonti utilizzate.

In quest'opera, Ferrari offre un'interessante e ben fondata riflessione sul senso del tempo. Nello sfogliare il libro risulta evidente che la struttura, lo stile dei ragionamenti, qualche ridondanza, la sovrabbondanza dell'apparato critico, ecc, sono propri di una tesi di dottorato, cosa che non viene menzionata.

Fin dall'introduzione, attira l'attenzione il fatto che l'Autore non attribuisca la fretta che caratterizza il nostro tempo all'industrializzazione, all'invenzione del motore o all'irruzione del mondo digitale, ma a una concezione del tempo emersa nella postmodernità, che ha portato all'utilizzo di questi strumenti – di per sé positivi – in un modo che alla fine ha danneggiato l'uomo stesso, che erano destinati a servire. Infatti, una delle tesi principali dell'autore è che a una determinata concezione del tempo corrisponde una specifica antropologia, con le sue implicazioni etiche (p. 243). Pertanto, Ferrari cerca di presentare la vita morale alla luce del tempo così come emerge dalla Rivelazione cristiana.

Colpisce positivamente l'abbondanza di autori citati, e ancor di più il carattere trasversale dello studio, che partendo dalla comprensione sociologica e filosofica del tempo (primo capitolo) sviluppa uno studio biblico per arrivare ad una proposta morale.

Per quanto riguarda la parte biblica (secondo e terzo capitolo) va segnalato l'accurato studio esegetico e anche una conoscenza del greco e dell'ebraico che non è scontata in un teologo moralista. Resta però la sensazione che siano rimasti inesplorati sia alcuni brani importanti – ad esempio il simbolismo veterotestamentario delle generazioni – che, soprattutto, il tema della domenica cristiana, in contrasto con l'ampio spazio dedicato allo *shabbàt* ebraico.

Il nocciolo del libro è comunque il quarto capitolo, nel quale la riflessione teologico-morale di Ferrari include le classiche questioni fondamentali: l'immagine e somiglianza di Dio, la grazia, la libertà, il peccato, la coscienza (che però è trattata meno ampiamente), le virtù umane e teologali, il Regno, la cura del creato, ecc, tutte studiate nella prospettiva del tempo, del quale Cristo è Signore e Redentore. L'autore presenta una morale di ampio respiro, che va ben oltre le visioni minimaliste fondate

sul compimento dei precetti, ma si fonda sulla valorizzazione delle realtà terrene e ordinarie come *locus* della santificazione. Le conseguenze di questo nuovo modo di rapportarsi con il tempo restano sempre a livello di disposizioni, intenzioni e motivazioni, e sembra che Ferrari lasci al lettore ricavarne le conseguenze pratiche specifiche.

Insomma, in questo libro Michele Ferrari presenta uno studio interessante, ampio e interdisciplinare sul tempo, la cui lettura aiuterà a viverlo con una prospettiva di eternità e quindi a non lasciarsi soggiogare dalla «tirannia dell'istante».

F. INSA

A. FRIGERIO, *Bioetica e civiltà tecnologica*, Glossa, Milano 2023, («Strumenti», 17), xiv, 471 pp.

Il testo, che fa parte della *Collana Strumenti* dell'editore milanese *Glossa*, può essere considerato, in sé, il *continuum* naturale di altre due precedenti pubblicazioni dello stesso Autore (sempre nell'ambito della teologia morale) aventi a tema la morale sessuale e la sessualità umana. Il raccordo con le precedenti opere in seguito citate, non richiede la lettura, seppur consigliata, dei tre testi, che si possono leggere singolarmente.

Il libro rappresenta l'ulteriore prova della preparazione e capacità espositiva di Alberto Frigerio: poco meno di 500 pagine, tra esposizione e prefazione, che possono essere lette con piacere anche da coloro che decidono di approcciarsi per la prima volta alla bioetica. Il titolo del volume è giustificato da una citazione, ripresa già in seconda di copertina, di A. Pessina che definisce la bioetica come «coscienza critica della civiltà tecnologica».

Il prolifico scrittore lombardo, sacerdote e medico, con questo contributo mette a disposizione dei lettori un valido manuale che, seppur non completo negli argomenti, traccia le linee principali della neo-disciplina bioetica offrendo un valido mezzo a chi desidera incamminarsi in questo studio, senza tralasciare di approfondire, in modo competente e mai banale, le tematiche esposte.

La struttura del testo ruota attorno alla definizione che l'Autore fa sua della bioetica come «lo studio sistematico della condotta umana nell'ambito delle scienze della vita e della cura della salute, in quanto questa condotta è esaminata alla luce dei valori e dei principi morali» (p. 5, in cui cita W.T. REICH (ed.), *Encyclopedia of Bioethics*, vol. 4, MacMillan, New York 1978, xix).

Non si può che esser d'accordo con quanto espresso nella Prefazione (pp. xi-xiv) a firma di Giancarlo Cesana (professore onorario di Igiene dell'Università Milano Bicocca in cui è anche stato Direttore del Centro Studi di Sanità Pubblica da lui fondato) per il quale gli argomenti trattati nel volume sono accompagnati da una «vasta documentazione che riferisce inoltre gli sviluppi recenti, rivolti in particolare a una revisione radicale della sessualità, la cui fondazione naturale si vorrebbe abolita, e al trans-umanesimo, ovvero al potenziamento tecnologico delle capacità umane fino all'immortalità» (p. xiii).

Il manuale si articola in due grossi capitoli preceduti da una brevissima Introduzione (pp. 3-6) e, prima delle Conclusioni (pp. 469-471), da un'Appendice «Bioetica

animale e ambientale» (pp. 451-468), troppo breve per essere indicata come terza parte. Nel primo capitolo («Fondamenti», pp. 7-137) traccia un'interessante storia della nascita della bioetica, il rapporto con la tecnologia (richiamata non a caso nel titolo), il proprio statuto epistemologico, presentandone i vari modelli e, infine, il raccordo profondo con gli aspetti civili di questa disciplina che non può fare a meno di prendere in esame gli ambiti della deontologia medica oltre che la trattazione di quella che è conosciuta come biopolitica. Il capitolo secondo («Questioni specifiche», pp. 139-450) è introdotto da una decina di interessanti pagine che vanno a fondare l'apparato filosofico-teologico del successivo argomentare; qui l'Autore fa rapidi ma significativi accenni al rapporto tecnica-cura e alla concezione dell'essere, oltre ad evidenziare quanto sia fondamentale la cura e, rifacendosi a Luigina Mortari, ricorda come «la cura è un fenomeno essenziale e irrinunciabile dell'esistenza, a motivo dei tratti caratteristici della condizione umana, che costituiscono quelle che chiama le "ragioni ontologiche della cura": incompiutezza, vulnerabilità, fragilità, relazionalità» (p. 146).

Il capitolo secondo, che rappresenta la parte più corposa del testo, è diviso in tre parti: «Inizio vita», «Disagio e malattia», «Fine vita». Si analizzano qui gli argomenti che l'Autore sceglie di mettere a tema. Nella parte inerente l'«Inizio vita» presenta un'analisi filosofica della «Crisi della generazione», il «Senso della generazione», la questione dell'«Aborto procurato», tratta della «Procreazione medicalmente assistita» e dell'«Ingegneria genetica». La parte «Disagio e malattia» è divisa fra «Ricerca biomedica», «Trapianti», «Dipendenza da sostanze psicotrope», «Bioetica sociale: disabili e anziani». Infine, nella sezione «Fine vita» troviamo: «Crisi del morire», «Ricerca di senso e domanda di Dio», «Valutazione etica», «Questione politico-legislativa», oltre a tre *excursus* («Suicidio»; «Dolore, sofferenza e santità»; «Immagini letterarie»).

Nel prendere in esame un manuale di bioetica di stampo personalista, immaginando un raffronto con un classico di questa corrente di pensiero quale è il testo di E. Sgreccia, *Manuale di Bioetica* (con diverse edizioni in due maestosi e oltremodo approfonditi volumi della casa editrice Vita & Pensiero) è naturale notare che il manuale del Frigerio ha provveduto ad una scelta di argomenti più che apprezzabile. Il raffronto con i volumi di Sgreccia se da un lato sembra mostrare la ristrettezza del presente lavoro, dall'altro dà ragione all'Autore per una scelta oculata delle tematiche presentate, tenendo pur presente l'evoluzione del pensiero a partire dalla pubblicazione del famoso vescovo bioeticista.

Sul perché porre attenzione al testo si condividono le parole di Cesana nella Prefazione: «L'autore è medico e prete. Capisce bene sia la biologia che la teologia e le filosofie soggiacenti all'una e all'altra. Nelle sue valutazioni cerca di tenere conto di tutti i fattori in gioco: ragione, fede, natura e storia. Premesse sono che la ragione è apertura alla realtà e non la sua unica e definitiva misura; la fede è il rischio di affidamento personale a cui la ragione conduce; la natura è ciò di cui siamo fatti; la storia è il filo di senso che percorre il tempo» (pp. xi-xii).

Tra le osservazioni che possiamo fare c'è che il testo è dimostrazione di quanto possano essere sterili le accuse spesso rivolte alla Chiesa di non poter (o non dover) parlare in campo bioetico. Il complesso di inferiorità fin troppo diffuso è largamente superato dal sacerdote lombardo che ha dedicato una sezione importante nel libro ad una stimolante parentesi teologica sulla vita e sulla morte. Questa parte – come notato

anche da chi ha curato la prefazione – ha un grande valore catechetico dimostrando la necessità che, pur considerando e studiando la bioetica secondo una coscienza critica della civiltà tecnologica, mai bisogna perdere il senso ultimo, il fine a cui si tende, riuscendo, così, ad avere uno sguardo omnicomprensivo del reale.

Gli innumerevoli rimandi a studi scientifici delineano le fondamenta di una struttura che Frigerio ha edificato con ponderata riflessione e scelta meticolosa dei punti di forza su cui erigere tutto il suo complesso argomentativo: «l'indagine svolta in riferimento al sapere bioetico e teologico consente di fuoriuscire dalla contrapposizione, per la verità pretestuosa, tra bioetica laica e bioetica cattolica» (p. 83).

Il testo, pur non avendo una propria sezione bibliografica (una carenza che si potrebbe sistemare in fase di edizione successiva insieme ad una revisione del testo che presenta qualche refuso) riporta in nota una vastissima documentazione e bibliografia a dimostrazione dell'approfondimento e della preparazione dell'Autore: si contano, nel testo, un totale di 717 note.

Il libro, sebbene risulti chiaro nell'impostazione usata di stampo personalista, non è uno strumento di settore e solo per coloro che ne condividono il pensiero; risulta, invece, essere un "parere" importante da prendere in esame tra le differenti scuole di pensiero bioetico che sono richiamate e analizzate criticamente nel trattato.

La lettura appare vivace per i tanti riferimenti a testi e romanzi esplicativi di un animo umano altrimenti impossibile da sondare: utilizzare i romanzi – la narrativa in essa contenuta – ci permette di scrutare e studiare l'essere umano e il suo mistero (o anche *enigma*, categoria usata dal nostro in una sua precedente pubblicazione). Il rimando, poi, alle immagini dei grandi classici del romanzo è la dimostrazione di come l'Autore sia un teologo moralista mentre le non poche citazioni di Luigi Giussani – che aiutano e mai sovraccaricano la lettura – svelano una precisa vocazione ecclesiale.

Senza mai apparire condizionato dal *politically correct* l'Autore esprime, con dimostrata competenza, giudizi di liceità-illiceità alle scelte in ambito bioetico, non dimostrandosi parco nel dare indicazioni circa la posizione cattolica e sempre avvalorando il giudizio con rimandi ai testi magisteriali relativi.

L'Autore, richiamando la classica distinzione aristotelica *praxis-poiesis* (pp. 10-11), aiuta il lettore ad assimilare la non indifferenza dell'agente rispetto ai propri atti; riprende *L'Action* di M. Blondel (a cui da ampio spazio), ricorda la posizione di H. Arendt («l'agire come una sorta di "seconda nascita" attraverso cui il soggetto si costruisce e svela») e P. Ricœur di cui ricorda l'idea della «identità narrativa» secondo cui «l'azione qualifica l'identità soggettiva, che matura nel tempo» (p. 11).

Appaiono adeguate le trattazioni della storia della nascita della bioetica come disciplina e quella della medicina (tratteggiata nei suoi punti essenziali, p. 386); molto apprezzabile tutta la parte fondativa che aiuta a controbattere alle eventuali possibili critiche di una impostazione bioetica di tipo personalista e metafisicamente fondata e quella sul senso della sofferenza e del dolore, per nulla banale e in grado di rispondere alla domanda di senso di chi si fa vicino a chi soffre (pp. 353-388).

Tutta la parte dedicata ai «Fondamenti» aiuta, inoltre, a far comprendere la non univocità del discorso bioetico e introduce alla complessità di approcci che si dimostrano, in alcuni casi, opposti per metodologia, impostazione filosofica e, quindi, applicazione nella – quando prevista – pratica clinica.

Consapevoli dell'impossibilità di segnalare tutti i passaggi di rilievo di quest'opera si conclude con l'interessante accenno alla differenza tra *evento* e *processo* (p. 212).

Il riferimento continuo ai dati scientifici e a testi autorevoli a livello accademico e di natura internazionale dimostra al lettore come la bioetica, nella sua interdisciplinarietà, si costituisca come materia di studio a sé e non solo ramo o derivazione di altra disciplina.

In definitiva possiamo dire che il testo di Frigerio rappresenti un riuscito tentativo di introduzione alla bioetica.

E. VITALE

A. FRIGERIO, *Morale coniugale. Fondamenti antropologico-teologici e questioni pratico-pastorali*, Cantagalli, Siena 2023, 156 pp.

«Avvicinati all'uomo che guarda fuori della finestra e cerca di capire il mondo, allontanati dall'uomo che guarda dentro casa e pretende di capire te» (p. 136) è una citazione di G. K. Chesterton che troviamo nelle "Conclusioni" (pp. 135-139) del nostro testo e facciamo nostra perché, in modo analogico, potrebbe rappresentare la chiave di lettura e comprensione del libro di Frigerio. Non si tratta, quindi, di presentare la morale coniugale cattolica partendo da principi che sono imposti all'uomo e alla donna di oggi, quanto, piuttosto, cercando di comprendere l'essere umano, maschile e femminile, nell'oggi e nella sua interezza e ricchezza antropologica – senza mai dimenticare quanto in qualche modo può averlo segnato, condizionato, strutturato e, a volte, deformato –, di capire quali strade e quali percorsi adottare per permettere alla verità sull'essere umano di esternarsi educandolo al bene, al bello, perché «quanto la legge esige è scritto nei loro cuori, come risulta dalla testimonianza della loro coscienza» (Rm 2,15).

Trattare della morale coniugale ai nostri giorni significa incamminarsi per sentieri non sempre condivisi ed essere consapevoli che alcuni possono interpretare ogni tentativo di presentazione della morale coniugale come provocatorio nei riguardi del pensiero dominante. Questo accade soprattutto nel caso in cui non ci si pieghi alle leggi dei sentimenti e dei desideri che, diventati impossibili da ignorare perché sembrano far da padrone nelle scelte quotidiane, sono strutturate come leggi della condotta, non permettendo la serena ricerca di una razionalità nel campo delicato e fondamentale dell'amore coniugale. Si tratta, qui, non di un amore qualsiasi, ma di quello tra uomo e donna: anche se, nell'epoca della liquidità degli affetti, il concetto di amore è spesso inteso-malinteso come donazione totale fisico-sessuale non soltanto nella prospettiva eterosessuale tra adulti.

Con la freschezza e la linearità che contraddistingue le altre sue pubblicazioni, il prof. Alberto Frigerio, sacerdote milanese con alle spalle una laurea in Medicina e Chirurgia, ci offre, più che una semplice introduzione alla morale coniugale – potremmo dire alla teologia dell'amore –, un libro rivolto ai non addetti ai lavori, ma che risulta utile anche a coloro che, indagando sul tema della morale sessuale, possono recuperare interessanti intuizioni. Si può, quindi, essere

d'accordo con le iniziali parole della "Prefazione" (a firma di Massimo Camisasca): «Alberto Frigerio è un giovane teologo che mostra nelle sue pubblicazioni di avere una buona stoffa per aiutare il cammino spesso difficile, ma esaltante, della comunità cristiana nel mondo» (p. 9).

Dell'Autore, oltre al presente testo (e a più di un paio di decine fra articoli scientifici, curatele e contributi), ricordiamo: *Corpo e lógos nel processo identitario. Il caso serio del transgenderismo: bioetica alla prova*, Cantagalli, Siena 2020 (Prefazione di Angelo Scola); *L'enigma della sessualità umana* («Strumenti», 15), Glossa, Milano 2022 (Prefazione di Livio Melina); *Bioetica e civiltà tecnologica* («Strumenti», 17), Glossa, Milano 2023 (Prefazione di Giancarlo Cesana).

La lettura è veloce (non solo per il numero contenuto di pagine: 156) ma soprattutto per la freschezza dello stile, lontano da un'esposizione puramente teorica. Interessante come la presentazione dei vari argomenti sia sempre introdotta da riferimenti di ordine sociale in modo da non far apparire mai la morale coniugale come un qualcosa di astratto da dover poi innestare al vissuto dei singoli. Pur partendo da quanto Tradizione e Magistero offrono, si è aiutati a capire come queste due fonti della morale rappresentino una sorta di sunto di quanto di vero si possa riscontrare ad una analisi non pregiudizievole dell'essere umano: uno sbocco naturale e razionale, quindi, della verità sull'amore umano permettendo «una comprensione totale dell'amore, superando la visione pulsionale, assai diffusa nel mondo giovanile, che riduce l'amore a pulsione da assecondare edonisticamente, e quella romantica, più diffusa nel mondo adulto, che misura la verità dell'amore in base all'intensità emotiva» (p. 135). Questo *modus operandi* nella stesura del testo è confermato sin dal primo capitolo "Rivoluzione sessuale" in cui l'Autore, ricorda quanto il *mestiere di vivere* sia condizionato «da precise forme simboliche (lingua, costumi, riti) che stanno alla base del vivere comune» (p. 25): qui, dopo aver tratteggiato gli elementi salienti dell'ideologia che fa da humus alla rivoluzione sessuale, richiamandone il teorico di riferimento (Wilhelm Reich, discepolo di Sigmund Freud) ed elencando alcuni tra gli autori più importanti (Herbert Marcuse, Gilles Deleuze, Felix Guattari) accenna agli elementi principali della loro visione dell'essere umano; passa, poi, ad elencare i "Tratti caratteristici" (pp. 31-35) della rivoluzione sessuale, per poi soffermarsi sugli "Elementi critici" (pp. 35-40) prima di giungere alle conclusioni della prima parte.

Il secondo capitolo ("Fondamenti dell'amore coniugale": pp. 45-74) è la base concettuale su cui costruisce l'esposizione del terzo, in cui tratta delle questioni più pastorali. La lettura del secondo capitolo è meno immediata rispetto al resto del testo, ma assai utile a fondare le conclusioni pastorali. Non tralascia la trattazione di concetti importanti per edificare saldamente le posizioni esposte successivamente (ad esempio tratta dell'*analogia entis* declinata nelle sue diverse accezioni e la dottrina metafisica della *distinctio realis* di Tommaso d'Aquino) dando, così, al capitolo una struttura più marcatamente filosofica.

È dato abbastanza spazio a diverse coppie concettuali (oggi spesso viste tra loro in contrasto): ne sono offerti chiarimenti utili a livello catechetico-pastorale. Solo per citarne alcune: naturale-artificiale, norma-coscienza, valori-doveri, soggetto-comunità, *agere-facere* ed altri ancora.

Il testo, soprattutto nella trattazione di alcuni argomenti, non risparmia esempi che aiutino la comprensione senza tradire, quindi, la parte del sottotitolo “questioni pratico-pastorali”: questo avviene in particolare nel terzo capitolo.

Il tema del libro – sempre attuale e costantemente soggetto all’attenzione e all’approfondimento teologico – è qui offerto dal sacerdote lombardo con l’intento riuscito di offrire una presentazione degli argomenti che si rinsaldi a quanto la storia della teologia morale offre come riferimento certo.

La lettura è resa interessante anche dal richiamo a diverse opere che hanno contribuito, soprattutto nell’arco del secolo scorso, ad indirizzare e, a volte, condizionare il pensiero sulle questioni di morale coniugale.

Nonostante, come appare chiaro dal numero di pagine, non vi sia possibilità di approfondimento delle singole tematiche, la bibliografia offerta (pp. 141-155) e i continui riferimenti a piè di pagina nel corso dell’esposizione permettono, a chi lo desidera, di approfondire gli argomenti di maggiore interesse.

Il testo – a cui non sembra si possa attribuire l’appellativo di “manuale” – si dimostra un validissimo strumento utile per chi deve avere sottomano le questioni principali della morale coniugale; può, quindi, essere utilizzato anche dai non addetti ai lavori come prima introduzione alla morale coniugale e ad alcune questioni di bioetica: pensiamo, ad esempio, agli accenni alle tecniche di fecondazione artificiale. Se ci soffermiamo alle due parti che formano il capitolo terzo, ci rendiamo conto della schiettezza con cui sono riproposte alcune delle questioni più spinose a livello pastorale che non mancano mai di trovare, da parte dell’Autore, un giudizio morale chiaro. Tanto per citare qualche argomento: metodi naturali, utilizzo del condom, coscienza creativa (dando spazio ad una chiara critica alla *morale autonoma*), concetto di “bene possibile” ed altro ancora. Non è tralasciato, poi, un interessante richiamo a quelli che sono considerati gli aspetti più delicati dell’esortazione apostolica post sinodale di papa Francesco *Amoris laetitia*: l’Autore fornisce una linea interpretativa a partire dall’azione educativa della Chiesa che deve incamminarsi nel solco della pedagogia dell’amore a cui si fa riferimento nel capitolo ottavo dell’esortazione.

Notiamo, infine, che nell’esposizione delle varie argomentazioni Frigerio è sempre saldamente ancorato alla dottrina tomista (san Tommaso è citato con chiarezza e abbondanza) e ad alcuni dei principali teologi moralisti contemporanei. Anche per questa ragione il testo può essere considerato come un’opera introduttiva ad uso di coloro che sono a digiuno di *morale coniugale*.

Nei limiti di spazio del testo, i riferimenti e le citazioni offerte nella “Conclusione” ci danno conferma del desiderio profondo di arrivare al cuore e alla mente dei lettori passando per il vissuto di poeti, romanzieri e affermati autori, quali principali conoscitori dell’animo umano e indagatori della Verità dell’Amore.

E. VITALE

J. LEAL, *Retorica patristica: elocutio e clause metriche. Una guida all'analisi degli scritti latini cristiani antichi*, Edusc, Roma 2024, 114 pp.

Parlare di *retorica* oggi è difficile: quando ci si imbatte in un'opera su questo argomento, il pensiero va immediatamente a un tema che riguarda qualcosa di desueto o di particolarmente ricercato e astratto. È il prezzo che deve pagare l'uso comune che nel linguaggio corrente ha assunto questo termine, che è stato limitato con troppa facilità a significati spregiativi anziché di bellezza espressiva. Stupisce questa riduzione di significato, soprattutto se si considera che tutti i giorni ogni essere umano fa regolare uso – in modo del tutto inconsapevole – degli schemi e degli stili retorici, affinché la propria comunicazione possa essere efficace.

Il testo di Jérónimo Leal, professore ordinario di Patrologia alla Pontificia Università della Santa Croce e docente invitato al Pontificio Istituto Patristico Augustinianum a Roma, aiuta a cambiare lo sguardo e a cogliere la ricchezza dello stile retorico.

Il libro, pubblicato con la collaborazione dei due Istituti universitari dove Leal è insegnante, ha molto da dire già nel titolo, che delimita in maniera ben precisa la finalità dello studio, perché guarda al periodo dei Padri della Chiesa con un'attenzione esclusiva agli scrittori in lingua latina e tocca due elementi del discorso retorico: l'*elocutio* e le *clause metriche*.

Quando si parla di *elocutio* si fa riferimento a una delle cinque parti con cui Cicerone, seguendo Aristotele, definisce la preparazione del discorso retorico: *inventio*, *dispositio*, *elocutio*, *memoria*, *pronuntiatio* e *actio*. Così le riassume Leal: «L'*inventio* è la ricerca dei fatti, veri o verosimili, che renderanno la causa giudiziaria (o l'esortazione o l'elogio) più credibile. La *dispositio* è la distribuzione ordinata dei fatti trovati. L'*elocutio* consiste nell'adattamento delle parole o delle frasi idonee all'*inventio*. La *memoria* è l'insieme delle azioni e delle parole che risiedono nell'animo. La *pronuntiatio* è la moderazione della voce e della gestualità in accordo con la dignità dei fatti e delle parole» (p. 14). Questo libro parla quindi di ciò che è a metà del lavoro retorico, perché propone la maniera adeguata con cui un discorso deve essere presentato, affinché le idee trovate non restino prive di significato, ma facciano presa sull'uditorio.

Ci si può domandare allora perché Leal abbia delimitato il campo della ricerca alla terza parte del discorso retorico, saltando le prime due. La motivazione è riportata nelle prime pagine del libro, che hanno il grande pregio non solo di introdurre il lettore all'argomento, ma anche di metterlo a proprio agio, perché trasmettono l'idea di un approccio lineare, diretto e semplice con cui si svolgerà l'intera trattazione. Si può immaginare questo testo intrecciato a doppio filo con un altro redatto dall'agostiniano Nello Cipriani e intitolato *La retorica negli scrittori cristiani antichi. Inventio e dispositio* (Istituto Patristico Augustinianum, Roma 2013). Come si evince dal titolo, lo studio di Cipriani si era fermato alle prime due parti del discorso retorico e per questo Leal intende portarlo avanti. C'è anche un elemento biografico che tiene uniti i due autori, perché Cipriani è stato docente di retorica di Jérónimo Leal ed è quest'ultimo a riportare nell'*incipit* del suo libro che lo stesso professore, scomparso all'inizio del 2024, «avrebbe voluto scrivere questo libro, ma gli mancavano le forze. Sia, quindi, questo volume un omaggio alla sua memoria» (p. 11). Come in fondo solitamente accade, si

può dire anche in questo caso che è stato il discepolo a completare l'opera intrapresa dal maestro.

È ancora doveroso, però, indugiare sul titolo, perché qui sono elencate le due sezioni in cui è diviso il libro: la prima parte è dedicata all'*elocutio*, la seconda alle *clausole metriche* che determinano nella pratica il ritmo del discorso in prosa, rendendolo adeguato ed efficace per chi ascolta.

Prima di entrare nel dettaglio delle due sezioni del libro, c'è ancora un termine nel titolo che suscita attenzione, perché l'opera viene presentata come una *guida* per l'analisi dei testi patristici latini. L'indicazione è importante e incoraggia il lettore che si trova effettivamente davanti a un testo non eccessivamente corposo dal punto di vista del numero di pagine, ma che al contempo propone oltre alle necessarie nozioni teoriche anche un risvolto pratico per chi intende avviare uno studio più dettagliato sull'argomento o per chi è intenzionato ad esercitarsi su dei testi di autori cristiani latini. C'è, infatti, un aspetto interessante che qualifica il libro come una guida ed è la presenza, al termine di ognuna delle due sezioni, di una proposta di esercitazione, che nella prima parte è totalmente affidata all'operosità del lettore, nella seconda, invece, è guidata dall'autore stesso.

L'autore definisce le due parti del suo libro «disomogenee» (p. 12), dando così un giudizio forse un po' troppo severo, perché in realtà esse occupano più o meno lo stesso numero di pagine. Forse egli avrà voluto riferirsi all'aspetto contenutistico, «perché esistono molti studi validi di retorica su cui approfondire l'argomento, ma manca una trattazione unita sulle clausole metriche» (pp. 12-13). In effetti egli cita due dei più noti studi contemporanei sulla retorica, quello di Heinrich Lausberg, *Elemente der literarischen Rhetorik* (Hueber, München 1949) e quello di Bice Mortara Garavelli, *Manuale di Retorica* (Bompiani, Milano 1994), giudicato da Leal «una fonte inesauribile di dati e al quale dobbiamo una parte non indifferente della nostra trattazione» (p. 11). Tuttavia l'autore fa anche notare che «questi testi non possono essere utilizzati come manuale di studio dagli studenti del cristianesimo antico, bensì solo come un manuale di riferimento o consultazione occasionale» (p. 11), perché fanno specialmente riferimento ad autori moderni. Qui emerge, allora, una peculiarità sull'obiettivo per il quale sono state scritte queste pagine: «Ciò che, però, a noi interessa è l'analisi dei testi antichi in latino, non tanto per pura erudizione, ma come preparazione al commento retorico. Invece, il ricorso ai classici, specialmente a Quintiliano e Cicerone, è molto utile per tentare di capire quale teorizzazione della retorica hanno imparato i Padri della Chiesa. Impiegheremo, pertanto, le due vie della dottrina retorica: gli antichi, che dedicano spazio ai principi retorici, e i moderni, che possiedono più strumenti per approfondire questa teorizzazione» (p. 12).

Subito dopo aver espresso le finalità dello studio, l'autore entra nella prima sezione del libro, descrivendo le parti che compongono il discorso retorico e poi trattando nel dettaglio, ma sempre in modo sintetico, ciò che riguarda l'*elocutio*. Se questo libro fosse stato un manuale, sarebbero servite molte pagine solo per sviluppare la prima parte, perché gli autori classici e quelli moderni hanno largamente studiato l'*ornatus*, cioè «tropi e figure, artifici linguistici per fornire alla frase un determinato effetto retorico» (p. 18). L'autore, invece, sceglie di citare soltanto le forme più usate nei testi cristiani latini. Qui va evidenziato un elemento di pregio del lavoro di Leal, perché ha

saputo unire la parte teorica attinta dai manuali antichi e moderni a quella pratica, riportando per ogni figura diversi esempi tratti dalle opere patristiche, con particolare attenzione a Tertulliano – cui ha dedicato notevoli momenti delle sue ricerche e delle sue altre pubblicazioni – a Cipriano di Cartagine, ad Agostino, ma anche ad altri autori posteriori, come Fausto di Riez e Cassiodoro.

Poiché il libro assurge a finalità pratiche, le figure che vengono di volta in volta presentate sono raccolte in maniera tale da aiutare lo studente a individuarle autonomamente in altri scritti patristici. Ecco, quindi, che si parte con quelle a *livello fonetico-morfologico*, che «formano un gioco di suoni o, se si fa riferimento alla flessione, hanno in comune una ricorrenza dello stesso caso o finale verbale» (p. 20), come avviene con l'allitterazione o l'omoteleuto; seguono quelle a *livello lessematico*, in cui «troveremo la parola carica di un nuovo senso, senza perdere completamente il suo significato originario» (p. 22), che è il tipico *gioco* compiuto dalla metafora o dall'ossimoro; si passa alle figure a *livello sintattico*, in cui «vedremo le alterazioni e le sostituzioni dei rapporti tra gli elementi del linguaggio che producono l'*ornatus* della frase» (p. 30) e ciò è realizzato, ad esempio, dalla circonlocuzione, dall'anafora o dall'asindeto e dal polisindeto; si conclude con il *livello logico-semantic*, come avviene ad esempio con la prosopopea, l'ironia e il paradosso.

La seconda parte dell'opera è dedicata alle clausole metriche e, come avvenuto per l'*elocutio*, anche qui si introduce in generale l'argomento attraverso nozioni di prosodia, sintetizzando ad esempio quelle basilari sull'uso delle quantità nella lingua latina, così da permettere a qualsiasi lettore di accostarsi a un testo classico anche senza avere peculiare preparazione sull'argomento. Ugualmente viene fatto con la scansione metrica, sino a giungere al terzo passaggio, dedicato al «Numerus e clausole metriche», cui verrà dedicato maggiore spazio. Qui, infatti, l'autore mette momentaneamente da parte il suo stile sintetico, per spiegare al lettore la complessità dell'argomento che ha iniziato a trattare e, nello stesso tempo, la mancanza ai giorni nostri di un metodo preciso di lavoro, accolto in maniera definitiva da tutti gli studiosi. La digressione gli permette di motivare le regole pratiche perché il lettore possa applicare le clausole metriche a un testo, alla luce dell'esempio di Cicerone e di alcuni tra i maggiori autori cristiani antichi.

L'ultima parte della sezione è di particolare interesse, perché riesce con grande facilità a mettere a frutto il lavoro teorico descritto in precedenza. Potrebbe restare, infatti, ancora aperta l'obiezione espressa già all'inizio sull'utilità di lavorare minuziosamente attorno alle clausole metriche. Se per un certo tempo esse sono state frutto di studi che hanno elaborato per lo più statistiche attorno alle opere degli autori antichi, Leal ricorda che esse parlano apertamente dello stile di chi scrive: le clausole «non sono scollegate dal testo in cui compaiono, anzi determinate sfumature, che costituiscono spesso una parte importante di esso, si percepiscono soltanto se si fa attenzione all'aspetto metrico» (p. 88). Ecco, quindi, che lo studio delle clausole può offrire, ad esempio, un aiuto nella verifica sulla paternità di un'opera, sulla distribuzione del testo in paragrafi, sulla disquisizione tra le diverse varianti dei manoscritti e, naturalmente, sullo stile dello scrittore.

Il libro si chiude con l'esempio guidato dall'autore sul *De testimonio animae* di Tertulliano, che viene analizzato nell'*elocutio* e rispetto alle clausole metriche.

Quest'opera è una guida originale e utile per chi si vuole accostare allo studio dei Padri della Chiesa latina con lo sguardo rivolto alla retorica. Ha il grande pregio di non ostentare alcuna ridondanza o complessità nell'affrontare gli argomenti trattati e invoglia il lettore a prendere personalmente l'iniziativa, per un verso mettendosi alla prova davanti a uno scritto antico, per l'altro aiutando a ricordare che questi testi erano spesso redatti per essere poi letti ad alta voce e per questo sono intrisi di stile retorico, che non può essere trascurato, se si vuole realmente conoscere anche il contenuto dell'opera. Come lo stesso Leal afferma: «Fondo e forma non sono aspetti separabili, ma formano un tutt'uno, come il corpo e l'anima nell'essere umano» (p. 12).

A. GIAMPIETRO

G. TRIDENTE, *Anima digitale. La Chiesa alla prova dell'Intelligenza Artificiale*, Tau Editrice, Todi (PE) 2022, 225 pp.

L'espansione dell'Intelligenza Artificiale negli ultimi anni rappresenta una vera rivoluzione tecnologica: la sua presenza in tutti gli ambiti della vita umana è un fatto consolidato. Come qualsiasi altra tecnologia, l'Intelligenza Artificiale pone in luce specifiche questioni etiche evidenziate sia dalla letteratura scientifica che dagli organismi internazionali. La Chiesa non è estranea a questo tema. Infatti, come una madre premurosa, condivide il desiderio di bene che alimenta il progresso tecnologico, mentre avverte sui rischi e le fallacie nascosti dietro un uso improprio dello stesso. Il libro di Giovanni Tridente illustra il percorso di riflessione che la Chiesa ha intrapreso negli ultimi anni riguardo alle nuove tecnologie e in particolare all'Intelligenza Artificiale. Sebbene la tematica ammetta diverse angolature di analisi, è inevitabile formulare la questione etica di fondo «che porta a chiederci come possiamo porci, in quanto esseri sociali dotati di intelligenza e coscienza di fronte a queste scoperte che inevitabilmente ci condizionano» (p. 33). La visione antropologica cristiana delineata dagli ultimi Pontefici è la chiave ermeneutica per questa riflessione.

L'opera risulta interessante per un pubblico generale, professante o meno la fede cattolica. Il suo merito consiste nel disegnare una sorta di sintesi della dottrina della Chiesa sulle questioni legate all'Intelligenza Artificiale attraverso tre settori particolarmente rappresentativi: il Magistero degli ultimi tre Papi, le istituzioni vaticane durante le rispettive assemblee plenarie e gli approfondimenti di una parte della stampa cattolica di riferimento. Lo sviluppo di queste voci corrisponde rispettivamente ai tre capitoli che compongono il libro.

Nel primo capitolo (pp. 19-59) viene presentato lo stato attuale dell'Intelligenza Artificiale, rendendolo di facile accesso anche per coloro che non hanno familiarità con l'argomento. Invece di concentrarsi esclusivamente sugli aspetti tecnici, l'autore cerca di mettere in luce il tallone d'Achille di questa tecnologia, ovvero la mancanza di empatia e di altre qualità tipiche dell'uomo, come la capacità di generalizzare, il buon senso e l'astrazione. È innegabile l'impatto di GPT-3, il cui funzionamento si basa sul processamento naturale del linguaggio (NLP), e degli sforzi di grandi compagnie come OpenAI e DeepMind per raggiungere l'obiettivo della cosiddetta Intelligenza

Artificiale Generale, la quale, sostengono, potrebbe ragionare come un essere umano e avere molteplici abilità, inclusa la comprensione della relazione causa-effetto.

Fin dai suoi inizi, la rivoluzione digitale ha avuto un impatto sull'organizzazione della società mettendo in discussione la stessa concezione di chi siamo. La riflessione filosofica è più che necessaria per chiarire la natura di mezzi – e non di fini – di queste tecnologie. Allo stesso modo, la riflessione etica ci protegge dalla seduzione dell'Intelligenza Artificiale a discapito della libertà e dell'autonomia umane. Questioni come l'impatto ambientale, la criminalità e il terrorismo o le disuguaglianze non devono essere trascurate. In questo scenario, la domanda fondamentale riguarda la governabilità dell'Intelligenza Artificiale: fino a che punto si può osare e fin dove si riesce a monitorare e governare. In effetti, «di fronte a scoperte che hanno forti incidenze e inevitabili conseguenze sull'uomo, sulla sua autonomia, libertà o specifiche prerogative, si rende necessario definire dei paletti entro cui queste innovazioni possono muoversi» (p. 42). È particolarmente interessante l'esposizione sintetica e ordinata delle direttive emanate dagli Organismi Internazionali (pp. 42-57) come l'Organizzazione per la Cooperazione e lo Sviluppo Economico e la Commissione Europea, così come l'esperienza asiatica, in particolare il caso della Cina.

Nel secondo capitolo (pp. 61-121) viene esaminata la riflessione maturata dalla Chiesa riguardo alla tecnologia e alle sue innovazioni più sofisticate. Qui vengono analizzate le dichiarazioni degli ultimi tre Pontefici nel periodo compreso tra il 1987 e il 2021. Tale indagine permette di concludere che non esiste una vasta raccolta di testi magisteriali specificamente volti a normare l'insegnamento della Chiesa su questi temi, ma si tratta di una tematica su cui si è cominciato a riflettere solo negli ultimi trent'anni. La formazione filosofica di san Giovanni Paolo II si concentra sulle questioni antropologiche sollevate dalla tecnica: è il Papa polacco che suggerisce uno spirito di servizio e di salvaguardia della dignità dell'uomo. A vent'anni dalla sua scomparsa, papa Francesco mette in evidenza l'inquietudine sociale suscitata dalle tecnologie emergenti, ribadendo con insistenza l'utilità di discernere questi cambiamenti con coscienza morale.

Di particolare interesse è l'analisi della stampa cattolica autorizzata (pp. 86-120), ovvero la rivista quindicinale *La Civiltà Cattolica* editata dalla Compagnia di Gesù e *Avvenire*, un giornale il cui orientamento editoriale è in sintonia con la Conferenza Episcopale Italiana. Le pubblicazioni analizzate mettono in discussione temi di interesse come il valore spirituale della tecnologia, i rischi dell'umanesimo digitale e le sfide al bene comune. L'autore esplora anche la sezione *Humanity 2.0* – presente nella versione online di *Avvenire* – che pubblica mensilmente articoli legati alla tecnologia e all'Intelligenza Artificiale. La cura della sezione è affidata al religioso francescano del Terzo Ordine Regolare, Paolo Benanti, riconosciuto esperto in materia. A lui si attribuisce il neologismo “algoretica” utilizzato da papa Francesco per indicare l'atteggiamento che ci si aspetta dagli scienziati e dagli operatori del mondo digitale: un impegno per lo sviluppo etico degli algoritmi. La Chiesa propugna un modello di Intelligenza Artificiale centrato sulla persona, evitando le problematiche sollevate dai modelli di Intelligenza Artificiale orientati al mercato o guidati dallo Stato.

Nel terzo capitolo (pp. 123-159) si presenta la riflessione accademica sviluppata dagli Organismi vaticani, i quali attraverso la ricerca sono al servizio della missione

evangelizzatrice della Chiesa. Tridente analizza sei iniziative corrispondenti all'Accademia Pontificia delle Scienze, all'Accademia Pontificia delle Scienze Sociali, all'Accademia Pontificia per la Vita, al Dicastero per il Servizio dello Sviluppo Umano Integrale e al Pontificio Consiglio per la Cultura, che è stato integrato nella riforma di papa Francesco nel Dicastero per la Cultura e l'Educazione. La ricchezza delle riflessioni si spiega sia per la specializzazione degli accademici sia per il dialogo interdisciplinare in cui sviluppano le loro riflessioni. Di particolare rilevanza sono le tre Dichiarazioni prodotte dalle Assemblee delle Accademie Pontificie dedicate agli argomenti dell'IA le quali «hanno restituito una concordanza tematica quasi assoluta con tutte le proposte avanzate dagli organismi civili, sia pubblici che privati. Ciò dimostra che la Chiesa è perfettamente inserita nella storia, ne osserva i mutamenti (e i progressi), condivide ciò che può apportare benessere agli individui e si preoccupa affinché ogni innovazione risulti veramente affidabile, per ogni uomo e per la società intera» (p. 168).

In questo contesto va menzionata la *Rome Call for AI Ethics* firmata al termine del *workshop* «Il buon algoritmo?» organizzato nel 2020 dall'Accademia Pontificia per la Vita. Questa dichiarazione ha la particolarità di non essere stata firmata solo da accademici o dai partecipanti (come nel caso delle precedenti), ma anche dai rappresentanti delle maggiori organizzazioni tecnologiche – come Microsoft e IBM – e dai rappresentanti della FAO e del Ministero italiano per l'innovazione digitale e la transizione tecnologica. Il documento incoraggia il senso di responsabilità delle organizzazioni, delle istituzioni e dei governi nel garantire un approccio etico all'Intelligenza Artificiale che assicuri alcuni principi fondamentali per una buona innovazione: trasparenza, inclusione, responsabilità, imparzialità, sicurezza, fiducia e *privacy*. La fondazione RenAIssance promuove attivamente questo progetto.

Il libro si conclude con due appendici (pp. 171-190). La prima comprende tre interviste, la prima delle quali è con il Presidente della Pontificia Accademia per la Vita, voce autorevole della Santa Sede. Rappresentando il mondo accademico, si presenta l'intervista al Direttore e all'assistente di ricerca del Centro DISF (Centro di Documentazione Interdisciplinare di Scienza e Fede) della Pontificia Università della Santa Croce (Roma). Infine, rappresentando il mondo della divulgazione scientifica promossa dalla televisione italiana, viene intervistata una giornalista conduttrice di programmi legati alle nuove tecnologie. La seconda appendice contiene un elenco bibliografico aggiornato di autori italiani che negli ultimi anni hanno pubblicato in merito all'Intelligenza Artificiale e argomenti correlati. Nell'elenco si evidenzia l'aumento delle pubblicazioni nel 2020 e l'attenzione data ai temi etici e agli sviluppi futuri. Il libro si conclude con una lista di siti web dove è possibile trovare informazioni aggiornate sulla tematica.

La rivoluzione dell'Intelligenza Artificiale rappresenta una sfida per l'umanità. La Chiesa, in quanto portavoce della Buona Novella e rifugio dell'umanità, contribuisce attraverso il dialogo, l'ascolto e la riflessione a delineare l'uso etico di questa tecnologia emergente al fine di preservare la dignità umana.

M.S. PALADINO

M. VALENZISI, *Matrimonio e celibato. Per una teologia nuziale del cristiano*, Eupress-Cantagalli, Lugano-Siena 2024, 352 pp.

«Esiste la Verità come idea o non piuttosto la Verità è il Dio vivente che adori, che ami? E vi può essere una teologia, una filosofia che non sia autobiografia?» (D. Barsotti). Non troviamo interrogativi più adeguati ad introdurre il nuovo libro di padre Manuel Valenzisi, frate minore della Provincia umbra, già autore di un accurato studio sul cristocentrismo del cardinal Giacomo Biffi, pubblicato nel 2021.

Ancora una volta siamo davanti al frutto di una lunga e impegnativa ricerca, stimolata dalla passione dell'autore per quella Verità che è il Cristo vivente, da adorare e da amare. Una proposta originale che scaturisce da uno sguardo sul Mistero capace di contemplare l'Alleanza nuziale di Dio con l'umanità nelle diverse forme di vita cristiana, stimolata all'origine da domande che la vita quotidiana, il ministero sacerdotale, i colloqui con i fedeli, la vocazione stessa dell'autore e le sue amicizie hanno suscitato nel suo cuore. Lo rivela con molto riserbo la stessa Introduzione (pp. 15-17), ove si legge che lo studio in questione «desidera offrire maggiore chiarezza a tutti coloro che sono in ricerca della propria vocazione o vogliono comprendere sempre meglio il mistero della chiamata che hanno ricevuto o della condizione che stanno vivendo» (p. 15). Altrove, poi, il Valenzisi dichiara: «L'intuizione che anima la ricerca [...] non nasce da una riflessione solipsistica, ma è dono della comunione dei santi e degli amici qui in terra» (p. 158).

Si tratta di una ricerca di taglio altamente speculativo mossa da ragioni estremamente pratiche, il cui spessore può essere colto adeguatamente solo possedendo conoscenze teologiche preve. Grande, infatti, è il Mistero che ivi si contempla. Il desiderio di far luce sugli “stati di vita” del cristiano diviene l'occasione per spalancare “anagogicamente” la porta sul “Cristo totale”, contemplato dalla particolare angolatura delle vocazioni cristiane, quale punto di fuga dell'intero divino disegno sulla Chiesa.

In quattro capitoli, intensi e sintetici, con competenza e maturità teologica, il Valenzisi procede con l'attitudine di chi sa che il presupposto primo e fondamentale di chi vuole argomentare su una qualsiasi questione è la sincera e franca individuazione del significato dei concetti impiegati. Così, nel primo capitolo (pp. 19-90) l'autore si addentra nella comprensione della nozione “stati di vita”, dimostrando, a partire da fonti scelte tra le più autorevoli, la sua origine socio-giuridica e non teologica. A queste prime pennellate intrise di diritto canonico, un vero e proprio *status quaestionis* ben documentato, segue un secondo capitolo (pp. 91-153) ricco di questioni controverse, sollevate con grande lucidità e acume dal teologo, il quale, senza voler dare soluzioni a tutti i quesiti, apre piste di approfondimento e di ripensamento assai interessanti per la teologia odierna. In verità, sono proprio le premesse del capitolo precedente a permettergli osservazioni critiche sui limiti della classica suddivisione, bipartita o tripartita, degli “stati di vita” cristiani, toccando nervi scoperti del pensiero credente e della pastorale, e determinando, in tal modo, la ricerca di un nuovo vocabolario. La questione lessicale, precisa l'autore, non è affatto di natura nominalistica, piuttosto si impone come necessaria per definire «in modo meno ina-

deguato alcuni punti fermi della condizione di ogni cristiano» (p. 16), quindi anche per meglio comprendere il contenuto dell'uguaglianza e differenza tra i battezzati. Da un'accurata disamina della questione, capace di indicare pregi e limiti delle principali proposte di ripensamento lessicale attualmente in voga, deriva per l'autore la convenienza di affermare l'esistenza di un unico *status* determinato dal Battesimo, nel quale si radica ogni «forma di vita cristiana», anzitutto quelle giuridicamente fissate dalla disciplina ecclesiastica. Si innesta su tale fondamento la proposta di riservare la nozione di «vocazioni paradigmatiche» alla forma matrimoniale e quella celibataria per il Regno, in quanto esse «restano per tutti testimonianza dei “due modi specifici di realizzare la vocazione della persona umana, nella sua interezza, all'amore”» (p. 136): paradigma, dunque, dei modi coniugato e celibe di vivere la risposta d'amore all'amore divino nel contesto dell'Alleanza nuziale.

Si fa notare che, secondo p. Valenzisi, il celibato può non essere scelto per una speciale consacrazione a Dio e, nonostante ciò, può essere vissuto cristianamente e consapevolmente per l'intera esistenza. Probabilmente, vi è qui un importante ampliamento di prospettiva che meriterebbe di essere sviluppato: l'accenno al celibato “vissuto”, nel senso di “non subito” sebbene “non scelto”, focalizza una condizione molto diffusa oggi tra i credenti, che, per varie ragioni, non convogliono a nozze né scelgono la vita religiosa, pur vivendo fedelmente il loro Battesimo. A nostro giudizio, tale concezione ha il pregio di riconoscere il valore di una condizione celibataria troppo spesso soggetta a umilianti pregiudizi, ma che, quando vissuta nella grazia, può essere espressione di una fedeltà battesimale capace di valorizzare proprio l'unico *status* dei cristiani. In definitiva, le analisi condotte dal Valenzisi sino a questo punto appaiono estremamente realistiche e, probabilmente, incontestabili, restando fermo il valore innegabile del matrimonio e celibato per il Regno. Tuttavia, ci preme notare una carenza – giustificabile in un lavoro che tocca tante questioni diverse – che riguarda la questione del celibato ecclesiastico. Solo accennata, tale discussa tematica, può trovare nella proposta del Valenzisi una base teologica rilevante. Alla sua luce si potrebbe rileggere, ad esempio, lo studio del card. Alfons M. Stickler su questo tema, che sembra teologicamente in linea con la prospettiva del nostro autore.

A partire dal terzo capitolo (pp. 154-210), il Valenzisi inizia a dipingere un magnifico affresco, dove diritto, dogmatica, sacramentaria, spiritualità e vita cristiana si compenetrano e si fondono al punto da lasciare emergere lo straordinario Mistero Cristo-Maria/Chiesa su sfondo trinitario, capace di collocare persino la relazione sponsale-verginale di Maria e Giuseppe nell'unico Mistero di Alleanza nuziale, ritenuta dall'autore una chiave ermeneutica rilevante di ogni autentica relazione tra Dio e l'uomo, Cristo e la Chiesa, tra tutti gli esseri umani, specialmente tra uomo e donna. Crediamo che, a tal punto dello studio, si apra la possibilità di validi sviluppi per la teologia del corpo, non mancando lo stimolo a percorrere teologicamente il dato della differenza sessuale alla luce della Redenzione di Cristo-uomo, che ha associato a sé Maria-donna per la salvezza del genere umano, una salvezza pienamente eterosessuale. Inoltre, nei suggerimenti dell'autore si può scorgere un invito implicito a ripensare il Mistero di Incarnazione-Redenzione dalla prospettiva dell'eternità, che guardando al Risorto nella sua verità di *Christus totus* non potrebbe più escludere Maria – e persino Giuseppe! – la cui presenza si rivela per nulla opzionale.

Elemento di estrema attualità e importanza è l'enfasi posta sul valore della relazionalità, che emerge specialmente nell'analisi delle vocazioni paradigmatiche, ma da estendersi ad ogni altra vocazione. Una relazionalità che diviene feconda nello Spirito Santo. Certamente suggestiva la lettura relazionale del celibato, ove l'assenza del coniuge non significa assenza di relazioni profonde, né solitudine o condanna all'isolamento, bensì l'attuazione di relazioni "inclusive", ossia aperte ad abbracciare le diverse esistenze, a stabilire amicizie feconde, espressione peculiare della partecipazione del celibe alla verginità del Cristo Sposo di tutta la Chiesa. Vi è qui una lettura del celibato per il Regno capace di aprire orizzonti di una ricchezza teologica ed esistenziale immensa. Lettura che, assieme al matrimonio, ha il pregio di manifestare la bellezza dell'unico disegno divino d'amore, riflesso e partecipato qui in terra da vocazioni "opposte", capaci di illuminarsi a vicenda, in una reciprocità che le rende l'una per l'altra, superando gli angusti confini della complementarità.

Inoltre, passando per la relazione sponsale e verginale di Maria e Giuseppe, «simbolo storicamente compiuto delle vocazioni paradigmatiche» (p. 158), l'autore focalizza l'indole escatologica e la fecondità, azione propria dello Spirito Santo, quali due coordinate che gli permettono di giungere al quarto capitolo (pp. 211-274), dedicato agli sviluppi teologici ed esistenziali della sua proposta, ove addita nel mistero eucaristico la fonte e il culmine del grande Mistero nuziale che il matrimonio e il celibato diversamente esprimono e vivono. Nell'ultimo capitolo, pertanto, il discorso procede nella direzione della vita cristiana e spirituale. L'Eucaristia è contemplata quale «presenza dell'Assente glorificato» (p. 272) nel contesto di un discorso sapientemente modellato sulle acquisizioni precedenti. Probabilmente, adeguatamente compreso, questo dato potrebbe rinnovare la pastorale vocazionale, quindi la vita della Chiesa, alimentando la consapevolezza della sua dimensione eucaristico-liturgica come vera fonte e culmine della vita cristiana.

Nelle conclusioni generali (pp. 275-285) si incontrano ulteriori prospettive di ricerca suscitate dal percorso svolto: nello specifico, la paradigmaticità del matrimonio e del celibato anche per i non battezzati; il mistero nuziale quale metafora di un principio dogmatico; una provocazione alla/della vita consacrata "canonicamente intesa".

Giunti al termine, il nostro incoraggiamento è di non lasciar cadere nel vuoto i tanti stimoli ivi contenuti, frutto di anni di studio, di preghiera, di dialogo e di fatica intellettuale. I più esperti e appassionati ricercatori dell'unica Verità, se faranno attenzione, sapranno cogliere in queste pagine molte risposte agli aneliti attuali di rinnovamento, che da tempo la teologia avverte in tutta la loro urgenza, per la salute eterna dei credenti. Non manca un forte impulso a uscire da una certa passività e ripetitività che talvolta tenta la teologia odierna su questo tema; un sollecito a risvegliare il desiderio di cercare il vero volto di Cristo per l'autentico progresso spirituale dei fedeli.

In questi quattro capitoli, ricchissimi, si potranno scorgere "novità" nella continuità; provocazioni e questioni aperte, ancora tutte da indagare; una certa relativizzazione di categorie forse troppo "classiche" per poter essere messe in discussione, cosa che, probabilmente, farà indignare qualcuno. E, come visto, se nei termini si vuole attuare un rinnovamento, nei contenuti non mancano sorprese. Concludiamo,

pertanto, con un invito ai teologi dogmatici, spirituali e ai canonisti a lasciarsi provocare da queste pagine, a vagliarne accuratamente gli orientamenti, le soluzioni, le provocazioni sottili, mettendo da parte ogni pregiudizio, aprendo il cuore e la mente alla “novità” perenne dello Spirito, risvegliando la passione per la Verità, proponendo eventualmente correzioni e approfondimenti lì dove ce ne fosse bisogno, sempre costruendo sulla salda roccia della Parola scritta e trasmessa dalla Tradizione vivente della Chiesa.

P. SALVATORI

A.B. ZNOROVSKY, G. JARITZ (a cura di), *Marian Devotion in the Late Middle Ages. Image and Performance*, Routledge, London-New York 2022, 226 pp.

Nel 2022 è stato pubblicato il volume *Marian Devotion in the Late Middle Ages*, i cui curatori, Gerhard Jaritz e Andrea-Bianka Znorovszky, entrambi legati alla Central European University di Vienna, hanno raccolto dieci studi dedicati ai diversi aspetti della devozione mariana nel Basso Medioevo. I saggi da loro prescelti vertono sostanzialmente su due tematiche: le rappresentazioni artistiche della Madonna (scultura, pittura, sfragistica) e le *performance* presenti nella pietà mariana tardomedievale (rituali, canti, oggetti di culto). Già la scelta dell'argomento merita attenzione perché lo studio degli elementi visivi e performativi della devozione mariana richiede l'interdisciplinarietà. In questo volume troviamo infatti testi di storici (Ferenc Veress, Andrea-Bianka Znorovszky), di storici dell'arte (Sabine Engel, Mija Oter Gorenčić, Mihnea A. Mihail, Alana O'Brien, Juliet Simpson, Elisabeth Sobieczky, Marina Vidas) e di musicologi (Kristin Hoefener). Grazie alle varie metodologie e ai numerosi strumenti di ricerca adoperati dagli autori, il volume offre un ricco e interessante contributo alla storiografia.

Un elemento importante a favore del libro è che tutti gli autori interpretano le fonti iconografiche utilizzando le fonti scritte. Per fare un esempio, Alan O'Brien, nel suo saggio *Development in Servite Marian Spirituality and the Use of Saint Filippo Benizi in Promoting Servite Miraculous Madonnas* (pp. 126-143), analizza le immagini miracolose della Madonna presenti nelle chiese dell'Ordine dei Servi di Maria, ricorrendo alle vite di Filippo Benizi e alla *Legenda de Origine Ordinis Fratrum Servorum*. Elisabeth Sobieczky, invece, nel suo articolo *Throne of Gold and Dress of Stars: On the Meaning of Polychromy in High Medieval Marian Sculpture* (pp. 6-30) studia una statua di Maria eseguita dal presbitero Martino (oggi custodita negli Staatliche Museen di Berlino) alla luce dei testi di Pier Damiani. Gli autori non si limitano dunque a un solo tipo di fonti ma travalicano i confini della propria disciplina, cercando una prospettiva più ampia e metodologicamente più ricca.

Un altro punto forte del volume è la contestualizzazione delle ricerche. Malgrado presentino una o più fonti legate a un ambiente specifico, gli studiosi tratteggiano sempre un panorama più vasto. Ad esempio, Andrea-Bianka Znorovszky, nel suo saggio *Mary, Michael, and the Devil. An Eschatological-Iconographic Perspective on the Liturgical Drama of Philippe de Mézières* (pp. 144-164), anche se si concentra soprattutto su alcuni frammenti dell'opera di de Mézières, presenta comunque, e in maniera molto interessante,

varie rappresentazioni artistiche che avrebbero potuto ispirare l'autore, creando così un *vademecum* per lo studio di diversi cicli iconografici medievali. Kristin Hoefener, invece, nell'articolo *Salve Regina in Late Medieval Dominican Communities* (pp. 106-125), studia l'uso dell'antifona mariana nelle comunità dominicane femminili in Germania, ed offre anche uno sguardo d'insieme della devozione alla Madonna nella famiglia domenicana. Grazie alle presentazioni di *background* delle fonti analizzate, il volume è un vero libro-guida che aiuta a conoscere molti aspetti della pietà mariana tardomedievale, riempiendo così, almeno parzialmente, un vuoto storiografico causato dalla mancanza di un *Companion to Late Medieval Marian Devotion* che, speriamo, prima o poi sarà preparato e pubblicato.

Malgrado la ricerca realizzata dagli autori sia minuziosa e molto precisa, si potrebbero comunque proporre delle fonti che arricchirebbero maggiormente alcuni saggi. Ci limiteremo a dare due esempi.

Nel suo preziosissimo testo sulle rappresentazioni della Madonna come *mulier amicta sole* ("*Mulier amicta sole*": *Transformations of Devotional Image between the Fifteenth and the Sixteenth Centuries*, pp. 165-181), Ferenc Veress mette giustamente in rilievo il ruolo di papa Sisto IV nella diffusione dell'immagine di Maria-Donna vestita di sole. Sfugge però alla sua attenzione l'affresco della Madonna *amicta sole* che si trovava nella Cappella Sistina sopra l'altare maggiore, e che poi fu distrutto per far spazio al *Giudizio universale* di Michelangelo. Quest'immagine noi la conosciamo grazie a una miniatura proveniente da un messale di Innocenzo VIII che rappresenta la messa celebrata in presenza del pontefice nella Cappella Sistina (la analizza J. BÖLLING, *Seeing the Pope. A Private Audience in the Medium of the Picture*, in J. SANDER [a cura di], *Raphael and the Portrait of Julius II. Image of a Renaissance Pope*, Städel Museum, Frankfurt am Main 8.11.2013-2.02.2014, Michael Imhof Verlag, Petersberg 2013, pp. 39-49). L'affresco del Perugino mostra che, per Papa della Rovere, un *motif* della *mulier amicta sole* era importante a tal punto che la fece eseguire nella cappella in cui si svolgevano quasi tutte le celebrazioni della corte pontificia.

Nel suo saggio *Mobile Shrine and Magical Bodies: Modern Afterlives of Medieval Shrine Madonnas* (pp. 182-200), Juliet Simpson parla della *Vierge ouvrante*, vale a dire di un tipo di scultura mariana con due battenti mobili nella parte anteriore: quando vengono chiusi, essi mostrano la Vergine in piedi o seduta; quando invece sono aperti, formano un trittico che rappresenta vari cicli iconografici (la Trinità o la Passione). La studiosa non solo cerca di interpretare queste sculture ricorrendo alle categorie antropologiche ma presenta anche il loro *afterlife*, vale a dire tenta di capire come queste opere medievali venissero percepite nelle epoche successive. Le sue osservazioni arricchirebbero un esempio della *Vierge ouvrante* che oggi si trova a Sejny, una cittadina nel nord-est della Polonia, nella basilica della Visitazione della Madonna. All'inizio del XVII sec. un nobile polacco, Jerzy Grodziński, comprò questa statua a Königsberg al mercato in cui si potevano acquistare vari oggetti di culto provenienti da antichi santuari cattolici trasformati in chiese protestanti nel periodo della Riforma. La statua, eseguita probabilmente nel XIV-XV sec., servì al nobile ad accrescere il prestigio della sua fondazione e a trasformare la sua chiesa in un importante luogo di culto. Molto presto nacque anche una leggenda secondo la quale l'acquisto della scultura era stato accompagnato da eventi di carattere miracoloso. Questo episodio è un interessante esempio

dell'*afterlife* di una statua del tipo *Vierge ouvrante*; la storia mostra che, grazie alla loro straordinarietà, queste rappresentazioni potevano aiutare a creare un nuovo santuario mariano che attirava i pellegrini curiosi di vedere una statua del tutto inconsueta.

Ovviamente, anche senza le opere da noi messe in evidenza, i saggi citati, e l'intero volume, costituiscono un importante apporto alla medievistica, non solo agli studi dedicati alla devozione mariana ma anche alla storia dei sensi, alla storia delle emozioni e delle *performance* religiose.

Ł. ŻAK

LIBRI RICEVUTI

- M. FERRARI, *Venga il tuo Regno. Dalla tirannia dell'istante alla pienezza del tempo*, Cittadella, Assisi 2022.
- A. FRIGERIO, *Bioetica e civiltà tecnologica*, Glossa, Milano 2023 («Strumenti», 17).
- A. FRIGERIO, *Morale coniugale. Fondamenti antropologico-teologici e questioni pratico-pastorali*, Cantagalli, Siena 2023.
- GIMENÉZ GONZÁLEZ AGUSTÍN, *María, mi madre. Corredentora, Mediadora, Abogada*, Ediciones Nueva Eva, Rivas-Vaciamadrid 2024.
- J. LEAL, *Retorica patristica: elocutio e clausole metriche. Una guida all'analisi degli scritti latini cristiani antichi*, Edusc, Roma 2024.
- SAINT EUGENE DE MAZENOD, *Lettres à la famille 1799-1904*, ed. par F. Santucci, o.m.i., Missionari O.M.I., Roma 2024.
- SEGRETARIATO ATTIVITÀ ECUMENICHE – A.P.S. (a cura del), *Chiese inclusive per donne nuove e uomini nuovi. "Edificati insieme per diventare abitazione di Dio"*, Ise San Bernardino, Venezia 2023 («Quaderni di Studi Ecumenici», 48).
- G. TRIDENTE, *Anima digitale. La Chiesa alla prova dell'Intelligenza Artificiale*, Tau Editrice, Todi (PE) 2022.
- M. VALENZISI, *Matrimonio e celibato. Per una teologia nuziale del cristiano*, Eu-press-Cantagalli, Lugano-Siena 2024.
- A.B. ZNOROVSKY, G. JARITZ (a cura di), *Marian Devotion in the Late Middle Ages. Image and Performance*, Routledge, London-New York 2022.

SOMMARIO DEL VOLUME 38 (2024)

STUDI

BOHDAN BYCHKO <i>La fede come risposta al problema del male secondo F. Dostoevskij</i>	37
MASSIMO DEL POZZO <i>I missionari della misericordia “strumento privilegiato” della sollecitudine e dell’attenzione della Chiesa per il perdono</i>	13
GIUSEPPINA DE SIMONE <i>Returning to Religious Experience: The Contemporary Challenge in the Dialogue Between Philosophy and Theology</i>	475
PAUL O’CALLAGHAN <i>The Perception of Logos ut ratio and Logos ut verbum in Creation. A Reflection in the Context of the 1700th Anniversary of the Council of Nicaea</i>	515
LLUIS OVIEDO <i>How the New Scientific Studies of Religion impacts on Fundamental Theology</i>	497
JAVIER SÁNCHEZ-CANIZARES <i>Science-Mediated Natural Theology: Unraveling the Burden of Proof</i>	407
ALBERTO STRUMIA <i>Aquinas’ Legacy in the Contemporary Dialogue Between Science and Faith</i>	439

NOTE

ANTONIO ARANDA (†) <i>«Ser Opus Dei para hacer el Opus Dei»</i>	91
CHRISTOPHER T. BAGLOW <i>Beyond Conflict: Teaching Theology in the Light of Science</i>	627
FABIO CIARDI <i>Carismi in relazione: identità e condivisione</i>	119
GUY CONSOLMAGNO <i>Science and Faith from the Viewpoint of the Scientist</i>	615
GONZALO DE LA MORENA <i>The Jewish Roots of Divine Christology: The Divine Word Before Jesus</i>	157

ROBERTO DI CEGLIE	
<i>Fede, ragione e carità. Una prospettiva tommasiana</i>	199
LUCIO FLORIO	
<i>The Use of Experimental Sciences by Theology. Giuseppe Tanzella-Nitti's Contributions in the Context of Fundamental Theology</i>	647
OSKARI JUURIKKALA	
<i>The Creative and Redemptive Word: Benedict XVI's Theology of the Book of Nature</i>	589
GIULIO MASPERO	
<i>Unity of Life, Unity of Knowledge: University and Scientific Knowledge Enlightened by Josemaría Escrivá's Charism</i>	569
FERNANDO PUIG	
<i>Radici ed espansione della "consacrazione" nella recente teologia della vita consacrata</i>	139
JAIME RODRÍGUEZ DÍAZ	
<i>Génesis, desarrollo y relevancia de la «unidad de los dos». Contribución de Karol Wojtyła a la antropología trinitaria</i>	217
CLAUDIO TAGLIAPIETRA, GIOVANNI ZACCARIA, JOSÉ LUIS GUTIÉRREZ	
<i>Cosmo, eucaristia e attività umana. Riflessioni teologiche a partire da "La Messa sul Mondo" di Teilhard de Chardin</i>	177
CLAUDIO TAGLIAPIETRA	
<i>The Humanistic Dimensions of Scientific Research</i>	553
STATUS QUAESTIONIS	
PAUL ALLEN	
<i>A Fundamental Theology for Doctrine: Science and History</i>	359
JOSÉ MARÍA MARTÍNEZ ORTEGA, FRANCISCO INSA	
<i>La paternidad espiritual del sacerdote en la tradición de la Iglesia</i>	243

ISTRUZIONI PER AUTORI

1. INVIO DEI CONTRIBUTI

Le collaborazioni possono essere inviate tramite il sito

www.annalestheologici.it

oppure per posta al seguente indirizzo:

Redazione di «Annales theologici»
Pontificia Università della Santa Croce
Via dei Farnesi, 83 – 00186 Roma
Tel. 06/681641 – Fax 06/68164600
email: annales@pusc.it

Gli originali devono essere inviati alla redazione sia in supporto cartaceo che in file di word processor, preferibilmente in formato di interscambio RTF (in luogo della copia stampata su carta, si può eventualmente inviare un file PDF). Nel caso si trovi nel manoscritto qualche testo in caratteri non latini, occorre assicurarsi che si utilizzi lo standard Unicode.

I contributi possono essere redatti in lingua italiana, francese, inglese, portoghese, spagnola o tedesca. Per gli studi e le note, è necessario allegare un abstract di circa 100 parole sia in lingua originale che in lingua inglese.

Il manoscritto deve essere inedito.

I contributi inviati saranno sottomessi alla valutazione di due referees.

I libri in saggio per recensione vanno inviati per posta all'indirizzo della redazione indicato sopra.

2. TESTO PRINCIPALE

Le citazioni vanno in tondo tra virgolette, se si tratta di passi brevi; se hanno, invece, una certa estensione (superiore alle cinque righe) vanno in corpo minore tondo senza virgolette, precedute e seguite da una riga bianca.

Per l'uso delle virgolette si seguano i seguenti criteri: nelle lingue neolatine (italiano, francese, spagnolo, portoghese), si usino le virgolette basse «» per le citazioni, le virgolette alte “” per le enfasi e per le citazioni interne di secondo livello. Nella lingua inglese e tedesca si accettano impieghi diversi, purché all'interno del testo si segua un criterio univoco.

Non vanno lasciati spazi bianchi fra le virgolette e l'inizio o la fine di una citazione, fra capitoli e versetti dei passi biblici, fra una parola e un segno di interpunzione, o fra la parola e il numero di richiamo della nota in esponente. Per i contributi in lingua francese, si inserisca, se è possibile, uno spazio unificatore prima dei seguenti segni di interpunzione : ; ! ? “ «

Per eventuali omissioni all'interno di una citazione si usino tre puntini di sospensione fra parentesi quadre: [...].

Per le frasi incidentali segnalate da trattino, si usi il trattino medio –.

All'interno del testo, il numero di richiamo della nota va dopo eventuali segni d'interpunzione.

Le parole cui si vuol dare particolare enfasi vanno tra virgolette alte, quando si desidera adoperare un termine con una accezione particolare, diversa dalla primaria (es. L'omiletica settecentesca, da noi giudicata “barocca”, conteneva in realtà...); vanno, invece, in corsivo quando si desidera dare particolare risalto ad un termine (es. la parola creatrice in corrispondenza con la parola profetica, rappresenta...).

Evitare l'uso di elenchi puntati lungo il testo dell'articolo.

Per le singole parole in lingua diversa da quella impiegata per il testo, e per i titoli delle opere citate sia nel testo, sia nelle note, si usi il corsivo. Fanno eccezione i nomi propri, di Istituzioni, ecc. Si eviti l'uso del grassetto.

3. APPARATO CRITICO

Per le citazioni bibliografiche si seguano i seguenti esempi:

Volumi: A. DI BERARDINO, B. STUDER, G. D'ONOFRIO, *Storia della teologia*, 3 voll., Piemme, Casale Monferrato 1993-1995; G. MASPERO, *La Trinità e l'uomo*, Città Nuova, Roma 2004, 123-130.

Articoli di riviste: R. WIELOCKX, *Limites et ressources de l'exégèse thomasiennne. Thomas d'Aquin sur Jn 4,46-54*, «*Annales theologici*» 18 (2004) 425-447.

Opere collettive: E. AGAZZI, *Realismo*, in G. TANZELLA-NITTI, A. STRUMIA (a cura di), *Dizionario Interdisciplinare di Scienza e Fede*, II, Urbaniana University Press - Città nuova, Roma 2002, 1181-1189; G. AMBROSIO, *Cristianità: unità della fede e universalismo cristiano*, in I. SANNA (ed.), *Emergenze umanistiche e fondamentalismi religiosi. Con quale dialogo?*, Studium, Roma 2008, 160; W.H. SCHMIDT, *Dio ('el)*, in E. JENNI, C. WESTERMANN (a cura di), *Dizionario Teologico dell'Antico Testamento*, I, Marietti, Torino 1978, 124-130.

Per l'indicazione dei curatori, si segua la dicitura del frontespizio (ed., edd., dir., a cura di, ecc.).

Nelle successive citazioni di una stessa opera, omettere l'iniziale del nome. Si ripetano il Cognome dell'autore (in maiuscolo), seguito da una virgola, e le prime parole significative del titolo, seguite dalla virgola e dal numero della pagina (o delle pagine) cui si fa riferimento. Esempi: SEQUERI, *Il Dio*, 144. CONGAR, *Le Christ*, 30.

Nota bene:

- a) L'indicazione della casa editrice è obbligatoria.
- b) Il luogo di pubblicazione va sempre nella lingua originale. Città del Vaticano è sempre in italiano.
- c) Non impiegare "cit.", "op. cit." o espressioni analoghe.
- d) *ibidem* e *IDEM*, da scriversi sempre per esteso, vanno rispettivamente in corsivo e in maiuscolo.
- e) "confronta" va abbreviato sempre cfr. Non si usino diciture analoghe (cf., vid., vedi, ecc.).
- f) Le sigle e le abbreviazioni usate vanno sempre sciolte la prima volta; non si usino mai abbreviazioni per i titoli di riviste, ma si esprimano per esteso.
- g) Per i libri della Sacra Scrittura, impiegare le abbreviazioni presenti sulla edizione del Catechismo della Chiesa Cattolica (1997) corrispondente alla lingua in cui si scrive, senza usare il corsivo. Nelle abbreviazioni che contengono un numerale, unirlo alla sigla. 1Gv, 2Cor, 2Re, Mt 2,25-27, ecc. per evitare la separazione a capo.
- h) I testi del Magistero della Chiesa vanno indicati sempre con la data di emissione, con riferimento alla fonte documentale (AAS, EV, «Insegnamenti», «La Documentation Catholique», ecc.).

4. RECENSIONI

Esempio di titolo del libro recensito. GIUSEPPE TANZELLA-NITTI, *Filosofia e rivelazione. Attese della ragione, sorprese dell'annuncio cristiano*, San Paolo, Milano 2008, pp. 246. L'informazione della collana va omessa se non significativa.

Non ci sono note a piede di pagina. Eventuali riferimenti bibliografici vanno inseriti fra parentesi tonde lungo il testo della recensione. La recensione non prevede sottotitoli e divisioni parziali.

Firmare con nome e cognome per esteso, in maiuscolo, allineato a destra.

