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SCIENCE AND RELIGION IN CHARLES S. PEIRCE

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ABBREVIATIONS

AAS	*Acta Apostolicae Sedis*, Libreria Editrice Vaticana, Vatican 1908-present. References are by volume, year and page numbers.
ASS	*Acta Sanctae Sedis*, Rome 1865-1908. References are by volume, year and page numbers.
CP	PEIRCE, C. S., *Collected Papers*, vols. 1-8, Hartshorne, C., Weiss, P., and Burks, A. (eds.), Harvard University Press, Cambridge 1935-58. References are cited by volume and paragraph number: "*CP* 5.119" for example refers to volume 5, paragraph 119.
CSPL	BRENT, J., *Charles Sanders Peirce: A Life*, Indiana University Press, Bloomington 1993.
CSPNI	POTTER, V., *Charles S. Peirce on Norms and Ideals*, University of Massachusetts Press, Worcester 1967.
DPP	MURPHEY, M., *The Development of Peirce's Philosophy*, Harvard University Press, Cambridge 1961.

DS DENZINGER, E.-SCHÖNMETZER, A., *Enchiridion Symbolorum*, Herder, Barcelona 1963. References are to paragraphs numbers.

IGPII *Insegnamenti di Giovanni Paolo II*, Libreria Editrice Vaticana, Vatican 1978-present. References are by volume, year and page numbers.

L *The Charles S. Peirce Papers of Houghton Library*, Microfilm edition, Harvard University Library Photographic Services, Cambridge 1966. The numbers follow Richard Robin's *Annotated Catalogue of the Papers of Charles S. Peirce*, University of Massachusetts Press, Amherst 1967 (Letters).

LCS KENT, B., *Charles S. Peirce: Logic and the Classification of the Sciences*, McGill-Queen's University Press, Kingston 1987.

MS *The Charles S. Peirce Papers of Houghton Library*, Microfilm edition, Harvard University Library Photographic Services, Cambridge 1966. The numbers follow Richard Robin's *Annotated Catalogue of the Papers of Charles S. Peirce*, University of Massachusetts Press, Amherst 1967.

N PEIRCE, C. S., *Charles Sanders Peirce: Contribution to the Nation*, vols. 1-4, Ketner, K.-Cook, J. (eds.), Texas Tech University Press, Lubbock 1975-1987. References are by the volume and page numbers. "*N* 1.155" for example refers to volume 1, page 155.

PCG ORANGE, D., *Peirce's Conception of God: A Developmental Study*, Institute For Studies in Pragmaticism, Lubbock 1984.

PPR RAPOSA, M., *Peirce's Philosophy of Religion*, Indiana University Press, Bloomington 1989.

PSP FISCH, M., *Peirce, Semeiotic, and Pragmatism: Essays by Max H. Fisch*, Ketner, K. and Kloesel, C. (eds.), Indiana University Press, Bloomington 1986.

RLT PEIRCE, C. S., *Reasoning and the Logic of Things: Charles S. Peirce*, Ketner, K. (ed.), Harvard University Press, Cambridge 1992.

SS PEIRCE, C. S.-WELBY, V., *Semiotics and Significs: The Correspondence between Charles S. Peirce and Victoria Lady Welby*, Hardwick, C. (ed.), Indiana University Press, Bloomington 1977.

SSPCP ANDERSON, D., *Strands of System: The Philosophy of Charles Peirce*, Purdue University Press, West Lafayette 1995.

TCSPS *Transactions of The Charles Sanders Peirce Society*, 1965-. References are to volume, year, and page numbers.

W PEIRCE, C. S., *Writings of Charles S. Peirce: A Chronological Edition*, vols. 1-5, Fisch, M. et al (eds.), Indiana University Press, Bloomington 1982-present. References are by volume and page numbers: *W* 1.37 for example refers to volume 1, page 37.

WACSP VERICAT, J., *Who was Afraid of Charles Sanders Peirce*, Indiana University Press, Bloomington (forthcoming).

INTRODUCTION

Why American philosophy? And why in particular Charles Sanders Peirce, the founder of pragmatism? Pragmatism as a philosophy has influenced the American thinking and way of life. To a great extent, its significance is felt in many elements that make up democracy: liberal capitalism; free enterprise; private property; freedom of thought and conscience that propelled the United States of America to its present leading position in the world affairs. Many scholars believe that pragmatism was not a product of one mind. It came into being as a result of a cooperative deliberation and mutual influences within the "Metaphysical Club" in the 1870's in Cambridge. Its founding members were Charles S. Peirce, Chauncey

Wright, William James, and many more.[1] It was William James who launched pragmatism as a new philosophy in a lecture, "Philosophical Conceptions" in 1898. It was also through his leadership that pragmatism became known worldwide especially among philosophical circles.

Nowadays there is a re-discovery of Charles S. Peirce as the key source of this American philosophy. He has recently become one of the most fashionable philosophers in the United States. Almost unknown during his lifetime, having tried unsuccessfully for decades to obtain a position at a university, he died penniless and in almost complete obscurity. He was praised extravagantly for his potential, damned wildly for his flaws and left unread and pronounced unreadable by the Protestant fundamentalists that in some sense dominated the time and the world he lived.

My *hurry-skurry*, to use Peirce's terminology, with this dissertation started when Professor Jaime Nubiola lent me a book about Peirce, a couple of days after my priestly ordination and shortly before I left Pamplona for my first parish assignment. Previously, I heard him mention in class that Peirce was his preferred philosopher at the moment. The book did not impress me at all for it was written in a negative

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[1] Cfs. M. FISCH, *Peirce, Semeiotic, and Pragmatism: Essays by Max H. Fisch*, K. Ketner-C. Kloesel (eds.), Indiana University Press, Bloomington 1986, pp. 137-170. From here on *PSP*. See also J. BRENT, *Charles S. Peirce: A Life*, Indiana University Press, Bloomington 1993, p. 83. From here on *CSPL*.

and pessimistic tone. Yet to my impassion, it left me wondering how could Professor Nubiola like a "bad guy." That summer, I had the chance to pass by Pamplona for a camp, I borrowed two more books, not about Peirce, but of two other authors I was considering to work on. Both of them have high regard for Peirce. I told myself that if I were to do a dissertation about Peirce, I must "know him in order to like him," as it is said in the classical saying: "nihil volitum nisi praecognitum." This was how this Peircean adventure started.

What brought me closer to Peirce was my previous formation as an engineer. For a period of time, he considered himself to be one also. Peirce was a man of science, a well-trained scientist. He worked for the U. S. Coast Survey for more than thirty years, the job which provided him a wide range of researches allowing him to develop his prolific intellectual scientific activity in chemistry, astronomy, geodesy, metrology and spectroscopy. It was in these fields that, through Peirce, the federal scientific agency gained international fame and he was considered a world authority in geodesy.

Peirce's road to philosophy was through his private readings of Kant's work from whom he had acquired an architectonic conception of philosophy. A well-trained scientist and mathematician, he got more absorbed in systematic philosophy. His greatest contributions were in the field of logic, but he also wrote extensively on epistemology, scientific method, semiotics, metaphysics, cosmology, mathematics, and ethics. Bertrand Russell remarked once: "Peirce was undoubtedly a great philosopher. He reminds me

of a volcano spouting vast masses of rock, of which some, on examination, turn out to be nuggets of pure gold."[2]

The other factor was Peirce's scattered remarks about God and Religion. Unlike many scientists of his time, Peirce's scientific orientation did not make him a mechanicist nor an agnostic positivist. Neither was he indifferent to religion. For all the scientific and mathematical thinking that he had, he never endorsed the antireligious enthusiasm of materialistic or deterministic promoters of science. He energetically scorned the "palpable falsity of that mechanical philosophy of the universe which dominate the modern world."[3] Yet in his enthusiasm for science, Peirce sympathized with the intellectual critics of religion, who ranged in his days from his Metaphysical Club mentor, the moderate and moralistic agnostic Chauncey Wright, to the fiercely anticlerical positivist Auguste Comte. Peirce himself regarded science as a challenge to religion, but not in all its forms. How he hold and articulated this proposition is the main objective of this study.

This dissertation examines the relation of science and religion as viewed by the founder of pragmatism. The study consists of four parts, namely: 1) the articulation of science and religion in the life of Peirce; 2) the scientific pursuit and

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[2] B. RUSSELL, "Foreword," J. FEIBLEMAN, *An Introduction to Peirce's Philosophy: Interpreted as a System*, Harper, New York 1946, p. xvi.

[3] C. S. PEIRCE, *CP* 6. 553, 1887.

pragmaticism of Peirce; 3) God, religion and Peirce; and 4) the merging of science and religion in Peirce. Finally, a conclusion offers a summary of the arguments presented in the entire paper.

The first part is a delineation on the person of Charles Sanders Peirce. To understand this man, it is necessary to have some knowledge of the cultural background, the educational orientation he had, his views on science, philosophy and religion which gave rise to the man and hence in a sense also to the philosophy. The second part deals with his scientific pursuit to make philosophy scientific, his classification scheme of the sciences and his "pragmaticism," different from the one diffused by William James and other types of pragmatism. The third part focuses on his conception of God and his religious thoughts, the influences on his religious beliefs, his idea of community and Church and a closer examination of " A Neglected Argument for the Reality of God." The fourth part focuses on how Peirce managed to hold his scientific inclinations and his religious beliefs together, a brief history of the American Catholic Church and Americanism controversy. Was pragmatism involved in this Catholic controversy? What about in the Modernist crisis of the Catholic Church during the first decade of this soon-to-end century? Was Peirce aware of it? What were his reactions? At the end is a discussion of Peirce's religious thoughts in the light of the most recent teachings of the Roman Catholic Church.

The method of this study is more expository than interpretative due in part to my first and short contact with the life and works of the founder of pragmatism. I encountered

difficulties mostly in the elaboration of the last two parts, since Peirce did not write a treatise on God and Religion, except for the "Neglected Argument." So I had to gather these scattered remarks found in his published and unpublished writings, a task undertaken with modest ambition since the *Corpus Peirceanum* represents a rather imposing hermeneutical challenge. Virtually nothing can be safely ignored as insignificant. Religiously significant notions and arguments appear even in his logical and mathematical essays. This is especially true for the unpublished manuscripts where Peirce's ruminations, in variant after variant of a single essay, can prove to be quite unrestrained. It would be a mistake to conclude, however, that in such works Peirce's religious ideas always appear as marginal comments loosely connected with his central line of argument, for such considerations themselves unfolded within an intellectual environment thoroughly permeated by religious ideas, but with a notable distinction: Peirce's deep Christian religious convictions made him peculiar to his time and place.

Peirce, both by choice and through circumstance, lived and worked in partial seclusion in Milford, Pennsylvania for more than twenty years before his death in 1914. In contrast, I had the good fortune, while writing this dissertation to have been surrounded and supported by friends, colleagues, and mentors. I am grateful to all of these individuals, too numerous to mention here. Several of them have played an important and decisive role in the development of this project.

Dr. Jaime A. Nubiola, who first introduced me to Peirce and reviewed my drafts at various stages in its evolution, raising perceptive questions, supplying hundreds of

suggestions for improvement. I believe that this dissertation would have been better had I pursued more of those suggestions. I did act on many of them, which explains the much improved discussion and analysis. I am especially grateful for his patience and for the thoughtfulness and vigor of his encouragement. Prof. Nubiola, together with Dr. Guy Debrock of the Catholic University of Nimega and Dr. Vincent Colapietro of Fordham University, lent me the copies they have of Peirce's letters used in this dissertation. Dr. José Morales also helped me in concepts of Episcopalianism while Rev. Fr. Ramón Stephen Aguilos and Mr. Zen Udani read the final drafts of the dissertation.

The «Grupo de Estudios Peirceanos» of the University of Navarre provided me the forum to discuss "Peircean issues." Sara F. de Barrena, Joan Fontrodona and Gonzalo Genova were my regular "contrincantes" and witnesses of my discoveries in Peirce. Distinguished visitors invited by the group shared with me their knowledge on Peirce and gave me their valuable assessments.

Unlike Peirce, who lacked books to elaborate his work in Milford, I had the microfilms, microfiches of all his works and a near inexhaustible secondary sources, thanks to the grants from "Plan de Investigación de la Universidad de Navarra" (PIUNA, 1994-1996) and the Government of Navarre (1996-1997) given to the project "Claves del Pensamiento de Peirce para la Filosofía, Ciencia y la Cultura del siglo XXI," from which this investigation forms part. I also give thanks to the *Fundación Vasconia* for the financial support for this project.

The Ecclesiastical Faculty of Philosophy and the Faculty of Philosophy and Letters of the University of Navarre for the help and encouragement afforded me for the betterment of my intellectual formation deserve my gratitude.

Sincere thanks to Msgr. Larry Connaughton of the archdiocese of New York for allowing me to exercise my priestly ministry in the parish of St. Joseph while I was doing my research in the US, to the Reverend Fathers Salvador Ferigle and Bob Connor for all the assistance, spiritual, human and intellectual during my stay in Cambridge and New York. The Reverend Fathers Juan Luis Lorda, José Antonio Fuentes, Antonio Viana and all the priest-residents of Albaizar for the familial and fraternal atmosphere.

My friends from Bidasoa International Ecclesiastical College demonstrated interest in this dissertation. The kids from Clubs Negubide and Lantegui might have consistently distracted me from writing, by so helped me maintain a sound balance and filled my priestly ministry with an unspeakable joy.

Sincere gratitude also goes to the bishop of Legazpi, His Excellency Most Reverend José C. Sorra, to his auxiliary bishop, His Excellency Most Reverend Lucilo Quiambao, for the encouragement and confidence they deposited in me through all these years. Finally, to my father Rolando, my mother Susana, my brothers and sisters and to my nephews and nieces for their prayers, encouragement, moral and financial support.

1. THE ARTICULATION OF SCIENCE AND RELIGION IN THE LIFE OF C. S. PEIRCE

1.1. The cultural atmosphere of New England and Charles. S. Peirce's early years (1839-1863)

Charles Sanders Peirce, although regarded as a prodigy in science, mathematics and philosophy, was neglected and often misunderstood during his time. It was because of his independence of mind, which, at first was admired, but later became an impediment to his success. According to James Feibleman, it was due to "the peculiarities of perspective to which life in a given date and place have committed him."[1]

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[1] J. FEIBLEMAN, "The Relation of Peirce to New England Culture," *American Journal of Economics and Sociology* 4 (1944), p. 99.

1.1.1. New England, Boston, and Cambridge

Charles Sanders Peirce was born on September 10, 1839 in Cambridge, Massachusetts, one of the six north-eastern states that composes New England.[2] It was named so by a soldier-of-fortune, colonist and explorer, Capt. John Smith, whose ambiance reminded him of his native England. The first early settlers were a group of one hundred men and women from the small ship, «Mayflower», that landed accidentally at Cape Cod in an icy November in the early seventeenth century. Their original intention was to settle near Jamestown, Virginia, the first permanent English settlement in the New World. It was a mixed group of people: religious Separatists, driven out of England to Holland twelve years before for protesting against the many vestiges of Catholicism still existing in the state-run Anglican Church; the Puritans, who objected to the established church with its over emphasis on «Popery», and were warned by the government to support the national religion or leave the country; while the rest were plain people from the streets of London and other cities who welcomed a chance to sail to the New World for a greater opportunity in life. These dissenters were known simply as the «Pilgrims» who were discontented with the political and

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[2] All historical information taken from O. STARKEY, "New England," *Grolier Universal Encyclopedia*, New York 1965, vol. 14, pp. 41-44 and F. ESCHER, *A Brief History of the United States of America*, Bantam Books, New York 1954.

religious situation in England.[3] The inhabitants were called «Yankees», a term which later applied to all people from the Northern states, and much later, to all Americans.

By coming to America, the New Englanders were eluding religious persecution in Europe, a persecution in which civil and religious motives were mixed. Their idea was to construct a society which they were not able to build in Europe due to the persecution: a society where they could worship God in their own way except for the radical Protestant leaders who insisted on strict adherence to Puritan doctrines. They established a popular government in which the will of the majority prevailed. All male citizens with proper religious qualifications voted in town meetings, governed the towns and each town sent representatives to the governing General Court. It was a theocratic regime, harsh and hostile to nonconformists and to other sects, characterized by the intolerance to anything considered as sin. For the Puritan, Catholicism was a corruption of the Christian message; Rome was like Babylon, the Pope the anti-Christ of the Apocalypse. Catholic settlement was effectively prevented and foundations laid for anti-Catholicism was endemic to the American scene.[4]

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[3] In 1634, the English Catholics were harassed and felt uncomfortable in Protestant surroundings colonized Maryland under George Calvert, first Baron of Baltimore, and his brother Leonard. While the «Quakers» led by William Penn settled in Pennsylvania in 1662.

[4] Laws were passed banning Catholics. There was even a statute in Massachusetts that threatened priest with death.

The victims of tyranny in the Old World became the prosecutors and witch-hunters of the New World. These were religious fanatics which would lead to horror and tragedy of witchcraft trials and death tortures.

Not rich in natural resources, New England hills were poor in mineral ores. It had a climate too cold in winter and too cool for many summer crops, and besides had infertile and stony soil. The early settlers took advantage of the adjacent sea for fishing and trading industry. Its trading centers developed a worldwide commercial intercourse with windjammers which went to every important seaport picking up furs on the north pacific coast, trading them for tea, silk and other oriental goods in Canton and then continuing around the world. World trade brought tremendous wealth to New England with Boston, the chief seaport of the New World, becoming the financial capital of the United States for some decades.

The early settlers of New England also cultivated a self-conscious passion for learning. During the first decade following the settlement, the General Court made appropriations for a «schoole» or «colledge» at «Newetowne» (present-day Cambridge), "before the nightly howl of the wolf had ceased from the outskirts of the villages."[5] The general education law passed moved for even small towns to have their own institutions of learning. Harvard College (present-

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[5] F. ESCHER, *A Brief History of the United States of America*, p. 22.

day Harvard University), founded in Cambridge in 1636 making it the oldest higher education institution in the United States, is the product of this law. New England has long been considered as a leading cultural center. During Charles Sanders Peirce's time, the names, Ralph Waldo Emerson, Oliver Wendell Holmes, Henry Wadsworth Longfellow, Nathaniel Hawthorne, Herman Melville and others, made New England the nation's literary capital, sending out waves of influence to the fast expanding United States and the other side of the Atlantic. These «Yankees» earned a reputation for their thrift, ingenuity, shrewdness, and cultural accomplishments.

At the turn of the century, the overseas trade from the Boston seaport declined rapidly while the port of New York rose such that by the middle of the century, its trade leadership was evident. To compensate for this loss, focus turned to industrialization creating a vigorous textile industry. Mills began springing up everywhere along the banks of Mirrimac river. New England also engaged in the manufacture of railroads and machineries making Boston the banking center of the region. Not naturally rich, it had to depend on other areas for raw materials like coal, oil, metals and particularly southern cotton. When restrictions were imposed on these materials, New England leaders made it an issue in the American civil war. Together with the trade decline was the loss of its pretended intellectual isolation from the whole American continent. It lost its confidence, shrank culturally and took the road back to archaism which consisted in the worship of what it once was. Conservatism supplanted the

beginning of the brave new world, bringing Puritanism, conformism and the imitation of European models.[6]

The first half of the nineteenth century saw New England undergo major transformation. Boston regained economic abundance attracting immigrants particularly from Ireland in droves and profoundly altering the region's ethnic composition. In a period of twenty years the population of New England rose from 2,000,000 to 2,700,000. The settlers began to consist of half the population of Boston population and a third of Cambridge. The Irish immigrants who began to constitute most of the labor force became threats to the culture and to persons of English descendants, especially in mill towns such as Lowell, Lawrence, and Fall River. The Yankees, hostile to the new immigrants, opposed the spread of slavery making Utopian communities crave for social reform.

When Charles Sanders Peirce was born, Cambridge, the scholastic suburb was more of a rural college town, with the air of a village. Harvard College, founded over two centuries prior to Charles' birth, was named in 1639 after the English Puritan minister John Harvard who emigrated to New England leaving half of his estate and his entire library to the recently opened college at the time of his death. Its curriculum, practically invariable from its very foundation,

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[6] Cf. J. FEIBLEMAN, "The Relation of Peirce to New England Culture," p. 103.

was intended to perpetuate, in the Boston manner, the merchant, the lawyer, and the man of God. The main subject was Logic, a prerequisite for Locke, Theology and Law. By the time young Charlie was eight years old, the Harvard curriculum and faculty had begun its transformation. Some faculty members like Cornelius C. Felton, Francis J. Child, Asa Gray, Swiss paleontologist Louis Agassiz, and astronomer and mathematician Benjamin Peirce tried to transform the college structure into a university by persuading the Harvard authorities to change the old seminar patterns of the College.[7]

Harvard College's several buildings were bounded by low wooden fences. On the south side of Mason Street stands the "stone-colored wooden building" where Charles was born and lived about five and a half years, referred by his family as "the old house" or "the Mason Street house." Much enlarged, it now houses the Weston Jesuit School of Theology. The family built a house on Quincy Street where they moved in 1845. Students and friends of his father called it "Function Hall" and the trees that shaded it, "Function Grove," even as they called him, "Function," for the treatise he wrote on *Curves, Functions and Forces*. Now it is Harvard's Sever Hall. The backyard was separated from Harvard Yard by a hedge and wooden fence and through a gate where the entire

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[7] Cf. J. BRENT, *CSPL*, p. 29.

Peirce family passed when they went to church in the college chapel[8].

1.1.2. From John Pers to Charles Sanders Peirce

Charles Sanders Peirce's[9] family roots, in the male line, reaches back to a certain John Pers from England, a weaver from Norwich, England who emigrated in 1637 with the first wave of religious dissenters who settled in Watertown, Massachusetts. The first four generations of the Peirces were shopkeepers, craftsmen, or farmers. Jerathmiel, Peirce (1747-1831) married Sarah Ropes, moved to Salem and entered the East India shipping trade where he made a fortune. His son, Benjamin (1778-1831), Charles' grandfather, graduated from Harvard College, got married to his first cousin, Lydia Ropes Nichols, entered the shipping trade and became a state senator. When Salem's shipping trade declined, he became a Librarian at Harvard, published a four-volume *Catalogue* of the library holdings, and wrote a history of the university

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[8] Cf. M. FISCH, *PSP*, pp. 401-403.

[9] The family name is pronounced «Pers» or «Purse». Biographical information is taken from: C. EISELE, "Charles Sanders Peirce," *Dictionary of Scientific Biography*, vol. 9, Charles Scribner's Sons, New York 1981, pp. 482- 488; P. WEISS, "Charles Sanders Peirce," *Dictionary of American Biography*, vol. 7, Charles Scribner's Sons, New York 1962, pp. 398-403; R. ARCHIBALD, "Benjamin Peirce," *ibid.*; M. FISCH, Introductions to *W*; J. BRENT, *CSPL*; and J. VERICAT, *Who is Afraid of Charles S. Peirce*, Indiana University Press, Bloomington (forthcoming), from here on *WACSP*.

which was published shortly after his death. His son Benjamin (1809-1880), the third child and second son, was born in Salem, graduated from Harvard College in 1829, taught for a while at the George Bancroft's Round Hill School at Northampton, Massachusetts and married Sarah Hunt Mills. This Benjamin Peirce, Charles' father, had been a member of the Harvard faculty for forty-nine years, starting as a tutor in mathematics but his ability won him the position of university professor of astronomy and mathematics at the age of twenty-four. From 1842 until his death, he held the Perkins professorship of mathematics and astronomy. He "was recognized as the leading mathematician of America."[10]

Benjamin Peirce was an extraordinary man, and in a very especial way adored by his friends. A much-admired teacher, the central figure of a movement to improve American education, especially higher education in the sciences. He was among the founders of the Smithsonian Institution and the Harvard Observatory. He was an active member of two movements: the «Scientific Lazzaroni» (adopted from the Italian name for the street-loungers and beggars of Naples), an informal alliance of eminent men in influential positions who aimed at controlling the institutional forums of science in America in order to promote scientific progress as they perceived it; and the movement for a national university. He was elected president of the American Association for the

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[10] S. NEWCOMB, quoted by R. ARCHIBALD, "Benjamin Peirce," p. 395.

Advancement of Science in 1853-54, co-founded the National Academy of Sciences in 1863, and was the superintendent of the US Coast and Geodetic Survey from 1867 to 1874. He published several mathematical textbooks of high quality. Charles later described him in a letter to Victoria Lady Welby as "a man of great intellect and weight of character."[11] His interest in philosophy and the religious implications of science would later have a great influence on his children.

Benjamin Peirce, the father, was a fervently religious but "unorthodox man." He was a Theist and a Unitarian[12] who believed in a especial conformity of the human mind to nature and to nature's God.[13] He still fought the useless battle against real or imagined Calvinist doctrines, and thereby helped create in Charles a distaste for theology and from all Unitarian negations. Benjamin used mathematical demonstrations for religious purposes as he believed that mathematics was the

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[11] I. LIEB, (ed.), *Charles S. Peirce's Letters to Lady Welby*, Whitlock's Inc., New Haven 1953, p. 37. The letter dated March 14, 1909 is one of the letters reproduced with permission from the original editor and publisher by P. WIENER (ed.), *Charles S. Peirce: Selected Writings (Values in a Universe of Chance)*, Dover Publications Inc., New York, 1966, pp. 412-422.

[12] Unitarianism is a system of religious thought which proclaims the belief in one God but rejects the doctrine of the Trinity and the Divinity of Jesus. Further details of this religion will be discussed in later chapters.

[13] Cf. F. REILLY, *Charles Peirce's Theory of Scientific Method*, Fordham University Press, New York 1970, p. 3.

key discipline for investigating the Mind of God. He regarded nature as the example of the wisdom of the Divine Geometer, and science as the means to the understanding of that wisdom. He believed in one God and science as the knowledge of Him. He accepted the nebular hypothesis and thus a type of pre-Darwinian cosmic evolution. The process of development out of a primal, homogenous chaos required an exertion of force by the creator and was sustained by purely mechanical law. This was paralleled by a spiritual evolution and bound by a pre-established harmony. The discovery of reality through science was a religious duty and was ultimately destined to lead to a final truth or to the revealed order of a Divine Geometer.[14]

Benjamin Peirce also refused to compromise the authority of the Bible, but adopted the strategy of granting science and the Bible equal authority in separate areas. He acknowledged that science had no authority over the Scriptures. This admission did not derogate dignity from science as he claimed that the sanctity of the Bible was equally undisturbed by denying it any authority over the truths of physical science.[15]

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[14] Cf. P. CONKIN, *Puritans and Pragmatists: Eight Eminent American Thinkers*, Dodd, Mead & Company, New York 1968, p. 195.

[15] I express my gratitude to Rev. Sheldon Bennett, minister of the United First Parish Church in Quincy, MA., who gave me the briefings of about Unitarianism. He told me that this posture held by Benjamin Peirce was branded by Ralph Waldo Emerson to be too rationalistic and prompted the latter to break from the church and organized Transcendentalism.

In his early years, Charles adopted many of his father's views concerning religion and its relation to science. He never rejected his father's faith that mathematical and scientific truths are insights into the divine plan of the world.[16]

Sarah Hunt Mills, Charles's mother, was the daughter of Elijah Hunt Mills, a lawyer and immediate predecessor of Daniel Webster as United States senator from Massachusetts. She was the third of seven children of Elijah Hunt Mills by his second wife, Harriete, daughter of a Boston merchant. Sarah received her name in memory of her father's first wife who died the same year of their marriage. As her father entered politics, she scarcely saw him. "Memories of her childhood at Northampton were far from being happy ones. She remembers that place as a time of careless childhood and pain,"[17] so much so that she had an acute tendency towards melancholy and other emotional ambiguities. Many Peirce scholars never put into consideration the influence of Sarah's character and personality in the unstable emotional development of her children.

Charles' father had a brother and a sister. Charles Henry Peirce was a practicing physician in Salem. When the Harvard College established the Lawrence Scientific School, he was encouraged to be the assistant of Eben Norton Horsford,

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[16] Cf. M. MURPHEY, *The Development of Peirce's Philosophy*, Harvard University Press, Cambridge 1961, p. 14. From here on *DPP*.

[17] J. VERICAT, *WACSP*, p. 13.

professor of Chemistry, who at that time just returned from studies under the innovative experimental chemist Baron Justus von Liebig in Giessen, Germany. They established the first laboratory for analytical chemistry in America. Prof. Horsford urged also Charles Henry Peirce to translate Stöckhardt's *Die Schule der Chemie* for textbook use. In 1850 Charles Henry became the federal inspector of drugs from the port of Boston and published *Examination of Drugs, Medicine, Chemicals, &c., as to their Purity and Adulteration* two years later. The sister, Charlotte Elizabeth Peirce, who spoke excellent German did most of the translation. Charlotte Elizabeth, «Aunt Lizzie» to the Peirce children, never married, kept school and privately taught French and German literature. She lived with Benjamin Peirce's family until her death. Both uncle and aunt would later on play important roles in Charles' life.

Charles Sanders Peirce belonged to the eighth generation of the Peirces. Charles was the second child of four brothers and one sister of Benjamin and Sarah. James Mills (1834-1906), the eldest, graduated from Harvard in 1853, spent a year studying Law, and was a tutor of mathematics for several years. While still a tutor, he entered the Divinity School where he graduated in 1859 and spent two years in the ministry as a Unitarian preacher in New Bedford, Massachusetts and Charleston, South Carolina. He then returned to teaching mathematics eventually succeeding his father's professorship at Harvard and remained in the university until his death. Benjamin Mills (1844-1870), the third, graduated from Harvard in 1865, studied at the Paris School of Mines and later at Lawrence Scientific School becoming a mining

engineer. He compiled *A Report on the Resources of Iceland and Greenland,* on the exploration he made for the possible US purchase of Iceland and Greenland, which was published by the US State Department. Unfortunately, he met a tragic death in Northern Michigan in 1870. Helen Huntington (1845-1923) married William Rogers Ellis, who went into the rolling mill business and eventually into real state. Herbert Henry Davis (1849-1916), the youngest, did a career in interior design and other businesses. He entered the foreign service, was secretary of the legation at the US Embassy in St. Petersburg, then Third Assistant Secretary of State and was assigned by President Theodore Roosevelt to serve as host at the Portsmouth Conference at which the treaty between Russia and Japan was drawn up, and later, minister to Norway.[18]

Charles' parents were both lovers of art and poetry which reflected in the family. Some scholars believe that the Peirce family was among the most socially and politically prominent in Boston and Cambridge. José Vericat, on the other hand, thinks differently. He believes that the Peirce family was a modest one. His arguments are that the Peirces lived from the double income of Benjamin Peirce as Harvard professor and member of the Coast Survey, wherein the loss of one could jeopardize the financial balance of the domestic economy. Also, that the Peirce lineage does not have cross-marriages between the children of Brahmin families and the intellectual

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[18] Cf. M. FISCH, "Introduction," *W* 1.xvi.

ones.[19] But this was not a hindrance for Charles to grow up in the Cambridge "scientific community." His father was a member of various clubs in Cambridge, like the Friday Club who had prominent members such as S. Bartlett, B. R. Curtis, G. S. Hillard, R. M. Mason, C. W. Story and Cornelius C. Felton[20], and the Saturday club whose members were Ralph Waldo Emerson, Oliver Wendel Holmes, Henry Wadsworth Longfellow, James Russell Lowell, William Story, Charles Norton, Lothrop Motley, James Dana, and other literary figures.[21] These clubs met on a specific evening of the week in the home of one of its members, with the host as the speaker, followed by a dinner afterwards. The Cambridge Scientific Club, whose prominent members were Louis Agassiz, Charles Henry Davis (uncle-in-law to the Peirce children) and his father, met at least twenty times in the Peirce house on Thursday evenings from fall through spring. Also, the Cambridge Astronomical Society whose president was Charles' father and the Mathematics Club attended by the members of the Nautical Almanac staff. And so Charles

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[19] Cf. J. VERICAT, *WACSP*, pp. 5s.

[20] J. VERICAT, *WACSP*, p. 11.

[21] Cf. M. FISCH, "Introduction," *W* 1.xvii. See also M. MURPHEY, *DPP*, p. 12s, and C. S. PEIRCE-V. WELBY, *Semiotics and Significs: The correspondence between Charles S. Peirce and Victoria Lady Welby*, C. Hardwick, (ed.), Indiana University Press, Bloomington 1977, p. 113s. From here on *SS*.

likewise got influences from these illustrious guests apart from his family.

Charles was his father's favorite. Professor Peirce responded to Charles' evident precocity. He learned to read and write without the usual course of instruction. Professor Peirce sharpened his aptitude for mathematics and any type of abstract thought by encouraging him to think analytically and scientifically. He led the boy into the intricacies of mathematics and philosophy and into such pastimes as puzzles, complicated and mathematical card tricks, chess problems, code languages, and number games. He also trained young Charles in the art of concentration and demanded from him exactness and precision sharply criticizing every error. They would spend long evenings discussing mathematical problems with which his father was wrestling. From time to time they would play rapid games of double dummy together from ten in the evening until sunrise. In later years this training helped Charles, though ill and in pain, to write with undiminished power far into the night.

1.1.3. Cambridge High and Harvard College

In a humorous autobiography-in-miniature written in 1859 shortly before graduation from Harvard College entitled "My Life Written for the Class Book,"[22] the year 1844 was written as the start of his education. According to his recollections, he

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[22] C. S. PEIRCE, *W* 1.1-3.

attended the Ma'am Sessions' school in the Craigie House to learn the development and practice of «instinct» understood as "the faculty of acting in a reasonable manner. That was to gain a sense of order in the relation of *ideas*, *affections* and *words*."[23] The year 1847 was when he resolved to master Chemistry, at an early age of eight which was also the year when his uncle, Charles Henry Peirce, was appointed assistant professor of Chemistry in Harvard's Lawrence Scientific School. During the establishment of the first-ever laboratory of analytical chemistry in America, his uncle Charles Henry and Aunt Lizzie helped him set up a private laboratory at "Function Hall" and worked his way through Liebig's hundred bottles of qualitative analysis. These experiments, designed to encourage the student's own explanation of the effects produced, introduced to young Charles the idea of scientific hypothesis. Many Pierce scholars are on in saying that Chemistry was the subject which stirred the young Charles towards the complexity of signs, in particular, the idea of «valency». When his uncle died, not long before he entered college in 1855, he inherited his chemical and medical library. Years later he would say that he grew up in a chemical laboratory.[24]

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[23] J. VERICAT, *WACSP*, pp. 19. Italics his.

[24] Cf. C. EISELE, "Charles Sanders Peirce," *Dictionary of Scientific Biography*, vol. 9, Charles Scribner's Sons, New York 1981, pp. 482-488.

The following year he was sent by his parents to a school kept by Rev. Thomas Russell Sullivan in Boston[25] to learn Elocution and lived in Boston with his uncle, Charles Henry Mills, his mother's eldest brother. Elocution that time was standard learning more normal than music. However, elocution was not a prerequisite for admission in Cambridge High School, his next step in institutional education. Being sent to live far away from home at the young age of nine meant something more than to develop his oratorical talent. In *My Life*, there is a 1844 entry of "falling violently in love with Miss W." Likewise, in 1846 he also mentions the same matter but to a certain one which he designates as Miss W'. His accounts get downright forceful in 1847, when he fall "most seriously and hopelessly in love." These love experiences by young Charles reflect a semblance of psychosomatic disturbances. Adding to this is his own commentary about his "lack of control of language that had forced him to learn languages," in later years. José Vericat offers these as the reasons why he was sent to Ma'am Session and to Sullivan's classes: educational therapies needed to induce the self-control necessary to correct the many psychosomatic disturbances suffered by young Charles.[26]

The following year after recovering from an illness, he entered Cambridge High School, which was a part of the

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[25] Cf. J. VERICAT, *WACSP*, p. 20, n. 1.

[26] Cf. J. VERICAT, *WACSP*, p. 21, n. 6.

public school system. It was founded according to the standards of the Prussian System of Normal Schools having the Royal High School of Edinburgh as a model. Its first principal, Eldbridge Smith, was a former student of the Edinburgh High School. Under the initiative of Harvard president, Charles. C. Everett, many Harvard professors contributed to the pedagogical life of the school from the very beginning. The Regulations for Public Schools of Cambridge encouraged the presence of the parents in the classroom. So the personal intervention of Benjamin Peirce to the education of his son, especially by the time of Charles' admission, with the pedagogical confusion and ever-changing curriculum is obvious for this reason. Studies at Cambridge High School were directed primarily towards the mastering and knowledge of language, to acquire a good and written style. The major reason for this was to stop language corruption brought about by the massive incursions of different languages to New England.

Under such pedagogical organization, the young Charles could not find the right atmosphere to develop his intellectual sensibility. Disliking school, he never showed a disciplined mind nor did his work reflect his brilliance and originality. To these he all attribute to his left-handedness.[27] In 1852 he joined the debating society and indulged in reading dramatic pieces, evidence of the mastery of Elocution perfected in Sullivan school. He stayed in Cambridge High School from

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[27] Cf. J. BRENT, *CSPL*, p. 49.

1849 to 1854 where he left "with honor after having been turned out several times." He did not graduate, nor does he make any mention of graduating from that school. Neither did his name appear in the list of graduates from the school. It is good to note that during that time it was not necessary to have a high school diploma to enter college. What counted more were the entrance examinations so he was sent by his father to E. S. Dixwell's school for a semester of intensive preparation before entering Harvard. Dixwell had been a headmaster of Boston Latin School— the best and most famous high school that time. It was the training ground for the Brahmin heirs. E. S. Dixwell, likewise a member of the Cambridge Scientific Club like Charles' father, was a celebrity in Boston and was sometimes member of the entrance examination committee of Harvard College.

In spite of his poor performance in high school, Charles' studies in private was intense. His intellectual development, by his own initiative due to his scientific curiosity, under the supervision of his father, was greater, considering that it was during this period that he wrote *History of Chemistry*—which was never found, read about one hundred-fifty literary authors in poetry and theater. There is also the episode, not recorded in his Class Book entry but which he recalled often of his introduction to logic. It occurred in 1851, maybe a week or two before his twelfth birthday. He entered his older brother Jem's (James) room who had just bought the textbooks for his junior year. Among them was Richard Whately's *Elements of Logic*. Charles picked it up and asked what logic was, got a simple answer, stretched himself on the carpet with the book open before him, and for over a period of several days

absorbed its contents. Since then he would comment later that it had never been possible for him "to think of anything, including chemistry, except as an exercise in logic."[28]

The year 1855, after working in Mathematics with his father[29] and attending Dixwell school previously, he entered Harvard College. Harvard, more conservative and reluctant to innovation than ever, never changed its structure as a theological seminar. «Prayers» were important in college life. Routines were to make continued expeditions to recitation rooms and to be present at innumerable prayer sessions. Classes were conducted the way a school master practices hearing recitations or translations. Recitations were examinations of texts rather than a conversation with the master about a certain topic.[30] These must have disappointed Charles who had "been immersed in the strictly scientific world of mathematics, physics and biology from early age."[31] So he began an intensive intellectual and scientific study on his

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[28] Cf. C. S. PEIRCE-V. WELBY, *SS*, p. 85s., C. S. PEIRCE, *CP* 8.342-379 and M. FISCH, "Introductions," *W* 1.xviii.

[29] Professor Peirce took charge of Charles' mathematical education. Instead of disclosing any general theorem or principle, he encouraged his son to work out mathematical problems by himself. (Cf. C. DELANEY, *Science, Knowledge, and Mind: A Study in the Philosophy of Charles S. Peirce*, University of Notre Dame Press, Notre Dame 1993, pp. 1-11.)

[30] Cf. J. VERICAT, *WACSP*, p. 30.

[31] Cf. C. S. PEIRCE-V. WELBY, *SS*, p. 47.

own or under the close supervision of his father. In his freshman year, he placed only seventy-third out of eighty-nine students and started to cut classes supposedly to have more time for John Weiss's translation of Friedrich Schiller's *Aesthetic Letters*, which was lent to him by his neighbor Anna Lowell Russell, and be with his classmate and great friend, Horatio Paine, with whom he shared strong intellectual interest as well as high spirits. Max Fisch comments that the book "interested them more than anything they were required to read in college, and they spent every afternoon for long months upon it, picking the matter to pieces as well as we boys knew how to do."[32] His Sophomore year was slightly better, placing sixty-first out of ninety but he started to misbehave and was involved in serious trouble for drinking. He was thus considered in his class as an «unhealthy influence» and was counted among the half-dozen or so of its «recalcitrants». In spite of this he continued his private studies reading Kant's *Critic of Pure Reason* which impressed him such that he learned it almost by heart, using Meiklejohn's translation.[33] Later on he added modern British philosophers. It is during this course that he provoked an incident that will spark antipathy with his chemistry instructor who happened to be Charles William Eliot, Harvard's future president for the remainder of Charles' career. He made the best showing in his junior year placing himself in the upper half (forty-seventh out

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[32] M. FISCH, "Introductions," *W* 1.xxvii

[33] C. S. PEIRCE, *W* 1.4.

of ninety-three) of the class. He opted for Chemistry instead of reciting Whately's *Elements of Logic*, as his brother Jem had done six years before him. He became a member of the W.T.K. (Wen Tchang Koun, meaning, "hall of literary exercise" in Chinese) which presented debates, orations, mock trials and readings in various literary styles. His senior year was the worst in his undergraduate years, due to his debilitating bouts with trigeminal neuralgia,[34] a disease which causes extreme pain in the nerve of the face, placing him a low seventy-ninth out of ninety students.[35] Despite all these he founded the Harvard Orthoepy Klub, an elite group dedicated to the performance of literary works.

Charles was one of the youngest in his class who graduated from Harvard in 1859 with a relatively modest academic distinction. His class positions were always lower from the

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[34] Brent was the first to note this sickness suffered by C. S. Peirce. Trigeminal or facial neuralgia is a neurological disease whose symptoms are acute, intense, and extreme unbearable pain affecting one or more of the three branches of the fifth cranial nerve on either side of the face, usually thought of as a result of pressure on the nerve sheath from a then unknown source. An attack may be triggered by a draft, a touch on the face, stress, or for no apparent reason. The pain may last a few minutes, a day, weeks, and even months. In C. S. Peirce's time it was incurable (nowadays it can be treated by surgery) and medicines used to abate the acute pain are ether, morphine and opium. His father and a maternal uncle also suffered the same disease. See J. JASTROW, "Neuralgia," *Dictionary of Philosophy and Psychology*, vol. 2, J. Baldwin (ed.), Peter Smith, Gloucester 1960, p. 168.

[35] Cf. J. BRENT, *CSPL*, pp. 52-59.

real ones due to the deductions he received every term for grave misconduct like intoxication, absence from recitations, absence from prayers, vandalism and neglect to do homework in Latin and forensic. These deductions were directly applied to the results of his exams. He also had low proficiencies also in classics, German and French. Probably he was just too young and too independent a mind to distinguish himself under the rigid Harvard system of his time. He would overcome the difficulties with languages shown during his high school days and become a master in many of them. In a letter to Victoria Lady Welby he mentioned other languages he could read like Zulu, Jagalu, Magyar, Arabic and a couple of other languages.[36]

Charles kept himself apart from the college life. He lived his social and intellectual life almost entirely apart from the regular activities of the college. Unlike the rest of his class, his father nor elder brother, he belonged to very few Clubs or Societies. He felt rejected by the Bostonian and Cambridge societies in which his father was so brilliantly integrated. He also rebelled against the Brahmin hierarchies of his young manhood. Added to this was his difficult character due perhaps to his parents' indulgence in his upbringing. But he was rather timid and evasive in nature. He was conscious of his training for genius under the tutelage of his father, who did not give any importance to Charles' academic performance and stressed more on the private education that he was giving

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[36]Cf. C. S. PEIRCE-V. WELBY, *SS*, p. 95s.

to his son. This made Charles intellectually arrogant, indifferent to the academic requirements of college and constantly resisting any authority except that of his father.

Suffering intermittently from neuralgia and severe colds, headaches, fevers and other illnesses during his last year in college, he once decided to discontinue in his studies. Not only was he doubtful whether he should devote himself to a life with so few material benefits; he was also drawn to philosophy. Feeling the need to earn his own living, he sought employment finding it with his father's friend Alexander Dallas Bache, superintendent of the Coast Survey, who offered him a place in his own field party in Maine in 1859, and the Mississippi in 1860. He also had a week-long stint in journalism reporting sessions of the American Association for the Advancement of Science from Springfield for the Boston *Daily Evening Traveler*. Returning to Cambridge in the latter half of 1860, he was appointed proctor and tutor at Harvard College during the absence of a regular incumbent. Around that time he also started studying the techniques of classification with Agassiz. initiated by the controversy between the supporters of Darwin and Agassiz on whether Biology or Chemistry was the chief classificatory science triggered by the appearance of Darwin's *Origin of Species* and an edition of Agassiz' *Essay on Classification* during his absence in Cambridge. In the spring of 1861, he entered the Lawrence Scientific School. In 1862 he received a Master of Arts degree from Harvard and the following year, studied under Louis Agassiz, Jeffries Wyman, and Asa Gray then received the Bachelor of Science degree in Chemistry *summa cum laude*, the first Harvard student ever to do so. Not until

that year did his academic achievement reflect his natural ability in a new type of education, which was tied to the laboratory and not to lectures and boring recitations.

What about his entry for the year 1859 in the Class Book (*My Life*): "Wondered what I would do in life"? He was wondering how he would earn a living, and whether he would marry or not. This he wrote to his brother Jem, who was then a minister, asking him for counsel during the second expedition of Bache's team to the delta of the Mississippi: "A man's first business is to earn a living for himself— and for his family if he has any. Scientific research is for such a leisure as that many leave him; society cannot be expected to pay for what it may have for nothing."[37]

1.1.4. Harriet Melusina Fay

During his undergraduate years in Harvard College, Charles borrowed many books that had little to do with his curriculum among which was a couple on marriage questions and conjugal love. Since childhood Charles was also inclined to fall in love easily which can be connected to his psychological disorders the way he confessed himself several times of "falling violently in love". In a letter to William James he mentions that when he was six years old he was an admirer of a certain Miss Lizzie Cary.[38] He cultivated friendships with

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[37] C. S. PEIRCE, *L* 334, 1859.

[38] Cf. C. S. PEIRCE, *L* 224, 1910.

Miss Russell and Miss Lowell, two young ladies belonging to Brahmin families in Cambridge. He gained the family reputation as a budding Don Juan or Casanova. He wrote many and long love poems almost all addressed to a: "class beauty," "maid with the dark blue eyes," "the school belle," "sleeping beauty named Valentine," or "Miss Fay" alias "Junks."[39]

Harriet Melusina Fay was the daughter of Rev. Charles S. Fay, Rector of the Episcopalian Church at St. Albans, Vermont, an old friend and buddy in college of Benjamin Peirce, Charles' father. On her father's side, she descended from the Huguenot (Protestant) family Fays who emigrated to New England in the seventeenth century and settled in Massachusetts. She was the grand-daughter of Judge Fay. On her mother's side she descended from the well-to-do Dublin family Hopkinses who emigrated to New England in the late eighteenth century. She was the grand-daughter of John Henry Hopkins, the first Episcopal bishop of Vermont. Zina, as she was called, finished her formal education at the Agassiz School for Young Ladies (now Radcliffe College of Liberal Arts for Women, affiliated to and under the supervision of Harvard) in Cambridge upon recommendation of Ralph Waldo Emerson[40] with whom she carried a brief but intense

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[39] Cf. J. VERICAT, *WACSP*, p. 34.

[40] Ralph Waldo Emerson, (1803-1882) was a prominent figure in the Anglo-Saxon literature. Born in Boston, he studied in Harvard. He was the fourth of eight children of William Emerson, a Unitarian preacher,

correspondence filled with Episcopal —almost Calvinist— exhortations against his Unitarianism. The Agassiz School for Young Ladies was located in the house built by the Harvard Corporation for Louis Agassiz in 1854 to keep him in the United States. His second wife, Elizabeth Cabot Cary, together with his daughters and his son Alexander, upon moving to the new house started the new school. Zina entered this school in the fall of 1859, studied history, literature, science, philosophy, and other subjects usually not offered to young women, even to her class. She was such a brilliant student that she delivered the valedictory address on her graduation. Zina was also romantic, strong minded, and a puritan feminist intellectual, a close follower of Margaret Fuller, who founded an abolitionist feminist group. Her feminism was for the improvement of the condition of women especially in three fields: higher education for women; creation of institutions to give women a public voice without competing directly with men; and the establishment of the Cooperative Housekeeping Society for the transformation of house work in order to free married women from its drudgery for higher things. She was also an extreme nativist, especially towards the Irish, whom she feared would destroy the New England life and culture due to their barbarism, Catholicism

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and Ruth Haskins of Boston, a woman of pronounced piety. (Cf. M. VAN DOREN, "Ralph Waldo Emerson," *Dictionary of American Biography*, vol. 3, Malone, (ed.), Scribner's Sons, New York 1963, pp. 132-141.)

and resentment. In this matter, she was similar to her would-be father-in-law, who had held her in high regards.

Zina and Charles probably met in the Agassiz home across Quincy Street from the Peirces in the winter of 1860-61. It was on January of 1861 when he began courting her formally. During the summer of this year, he received his first official position as a regular aide —assistant computer— in the U. S. Coast Survey upon recommendation of his father making him a government employee, and thus, exempting him from being drafted to the Union Army during the American Civil War (1861-1865) that erupted and allowing him to pay Zina and her family the first extended visit the following summer to St. Albans. They were engaged in the spring of 1862 and Charles' parents noted that for the first time he was taking religion seriously. He intensely read biblical literature most probably in preparation for marriage and conversion. On October 16, 1862, they got married with the approval of both families in a officiated by her father in the Episcopal church of St. Albans in Vermont. He was twenty-three and she twenty-six. Four months before the wedding, Charles, whose upbringing was Unitarianism, was confirmed in the Episcopal Church by Bishop Hopkins in the Chapel of the Vermont Episcopal Institute in Burlington, Vermont in the presence of Zina and several members of her family. This conversion to Episcopalianism which would last throughout his life, although he was not a regular communicant for a certain period of time, was a conversion from Unitarianism to Trinitarianism.

Charles' work as an aide to the Coast Survey earned him a meager income of 35 dollars per month. This constrained the

newly weds to first live in the Peirce family home. They planned to go to Chicago to keep a school there but the plan did not materialize. They instead went to New York to consider the possibility of keeping a school of their own. New York turned out to be expensive to live in. Charles also tried Colorado. The one opened in Cambridge did not go through neither (they had practically no pupils at all) in spite of the efforts of Sarah Hunt Mills. Two years later, they moved to their modest family house located at 2 Arrow Street although they still depended on the elder Peirce's house for their meals.

1.2. C. S. Peirce: scientist, mathematician, and logician (1863-1890)

The sixties had not been an easy decade for the Peirces. Sarah Hunt Mills was in a continued state of depression and anxiety due to the multiple family problems. Her worries went from Charles' meager income, to her son James' tendency to bachelorhood, to her only daughter Helen's engagement to poor William Ellis (she aspired that her only daughter be married to a Brahmin heir), to her son Benjamin's rebellious and republican tendencies, and to Herbert's failure to enter Harvard College. There was however, no way of stopping Charles intellectual production, for, from this point onward there was an intense and prolific intellectual scientific activity not only in chemistry, astronomy, geodesy, metrology, spectroscopy but also in literature and rethorics. In 1863,

under the supervision of his father as assistant computer in the US Coast Survey, he issued his first important professional publication entitled, "The Chemical Theory of Interpretation." (*W* 1.95-100)[41] Late that year he delivered the oratorical piece "The Place of Our Age in the History of Civilization" before the Cambridge High School Association where he described the religious functions of science. He stressed that the end of science is for God's glory and man's use, so action in higher than reason, to deny this is selfishness and atheism. Man dies but it should not be the reason for him to stop at reason as he has for the last two hundred fifty years. It is unnatural for him to do so. Man must use all his gifts to impress nature with his intellect, converse and not merely listen. At the end of our age, when skepticism and materialism have done their perfect work, we shall have a far greater faith than ever before. For then we will see God's wisdom and mercy, not only in ourselves but in everything else, a God-given inward existence and perfectibility. We will see nature for our use as God's sole children.

> (...)So the poet in our days, —and the true poet is the true prophet— personifies everything, not rhetorically but in his own feeling. He tells us that he feels affinity for nature, and loves the stone or the drop of water. But the time is coming when there shall

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[41] The motive for this article is not known. Many Peircean scholars are of the opinion that the article may have been a requirement for the degree of B. S. Chemistry, or it may have been inspired by a requirement from one of his instructors.

> be no more poetry, for that which was poetically divined shall be scientifically known. It is true that the progress of science may die away, but then its essence will have been extracted. This cessation itself give us time to see that cosmos, that aesthetic view of science which Humboldt prematurely conceived. physics will have made us familiar with the body of all things, and the unity of the body of all; natural history will have shown us the souls of all things in their infinite and amiable idiosyncrasies. Philosophy will have taught us that it is this *all* which constitute the church. Ah! what a heavenly harmony will that be when all the sciences, one as viol, another as flute, another as trump, shall peal forth in that majestic symphony of which the noble organ of astronomy forever sounds the theme.[42]

His other work on literature related to linguistic problems would give rise to his publication of "Shakespearean Pronunciation"[43] in 1864. What a cris-cross of discipline. Evidently, Peirce had a privileged mind to indulge in various fields all at the same time with Chemistry as his stepping stone to the experimental sciences. Both his occupational work and

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[42] C. S. PEIRCE, *W* 1.101-114. Italics his. The reason for the invitation to deliver the oration is not known since Peirce left Cambridge High School under inauspicious manner in 1854.

[43] C. S. PEIRCE, *W* 1.117-143. Peirce's interest in orthoepy and Shakespearean pronunciation probably began while he was a member of Harvard Orthoepy Klub during his senior year. He worked on this article with John B. Noyes and was supervised by James Russell Lowell who recommended it for publication to the editor of the *Atlantic Monthly*.

hours of leisure furthered his intellectual pursuits. He stayed with the Coast Survey for more than thirty years providing him a vast scope for research diversity. Aside from being a chemist, he was also a mathematician. His original contributions to the field of mathematics had to do with linear algebra and matrix theory. In Carolyn Eisele's words,

> "(...) his mathematical inventiveness was fostered by his researches in the Coast Survey. His theory of conformal map projections grew out of his studies of gravity resulted in his quincuncial map projection of 1876 which was revived by The Coast Survey in chart no. 3092 to depict international air routes. This invention represented the first application of the elliptic functions and Jacobean elliptic integrals to conformal mapping for geographical purposes."[44]

But Peirce had a higher aspiration: Logic which unified the enduring interest of all his intellectual labors. As he conceived it, scientific logic must take full account of the reasonings of mathematics and the sciences which traditional logic has failed to do. According to his considerations, mathematicians who are not logicians, and logicians who are not mathematicians are not fully competent to analyze reasonings of

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[44] C. EISELE, "Charles Sanders Peirce," *Dictionary of Scientific Biography*, vol. IX, Charles Scribner's Sons, New York 1981, pp. 483. Eisele edited Peirce's mathematical papers, *The New Elements of Mathematics by Charles Sanders Peirce*. Murphey deals also on the mathematical writings of Peirce.

mathematicians. The same holds true with scientists who are not logicians, and logicians who are not scientists or who are scientists in only a single science or two or three related sciences, are not fully competent to analyze reasonings of scientists. All his works in the different branches of science and mathematics were in a way subsidiary to his work as a logician. All the papers he submitted to the American Academy of Arts and Sciences, where he was elected fellow in 1867, were all in logic. Of the thirty-four papers he submitted from 1878 to 1911 to the National Academy of Sciences to which he was elected ten years later, a third part were in logic.

1.2.1. Harvard and Lowell lectures on logic

In the spring of 1865, Charles was hired to give a series of university lectures "On the Logic of Science." He was scheduled to give the lectures on twelve Friday afternoons at 5 o'clock beginning on March 17, 1865. He had no audience for the first meeting perhaps due to the inclement weather. However, he gave the remaining eleven lectures during the succeeding weeks. Of all the manuscripts of these lectures, only nine were recovered. Charles' lecture series may be divided into two parts: a) The degree and character of certainty of scientific ratiocination to which he dedicated six lectures: on the concept of logic, the theory of induction developed out of Aristotle's which he preferred, the study of modern theories of Boole, Apelt, Herschel, Gratry, Whewell and Mill, a full lecture comparing Whewell's theories with that of Mill and Comte, the theory of Bacon, and Boole's calculus of logic; and b) the degree and character of the

certainty of scientific principles where he talked extensively of Kant's theory on this subject, the consideration of the effects of modern researches in modifying this theory, forms of inductions and hypothesis and the ground of inductions.[45] According to the editors of the *Writings of Charles Sanders Peirce, A Chronological Edition*, these lectures evolved into the final form from the spoken and sometimes enacted words. He deleted and inserted large blanks of materials writing notes and directions to himself, combining the words with physical activities, like placing explanatory diagrams on the blackboards. In some lectures Charles quoted heavily from earlier authors apparently having the books at hand and quoting directly.[46] In these lectures Charles started to express his admiration for William Whewell, a contemporary British scientist and logician. In the 1840's a controversy between John Stuart Mill and Whewell errupted on the nature of scientific inquiry and discovery. Charles sided with Whewell. He would describe him as "man of science," "historian of science," and "the most profound writer upon our subject." He considered him as the one who pointed the way to a correct understanding of the nature of scientific investigation in the 1869 lecture on Whewell in his second series of university lectures on British logicians. Later that year he started his Logic Notebook— his private notebook of logical

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[45] Cf. C. S. PEIRCE, *W* 1.162-302.

[46] Cf. FISCH, M. et al, "Essay and Editorial Method," *W* 1.578-585.

studies— considered as the most fruitful of all his unpublished manuscripts.

The following year he gave the Lowell Institute Lectures entitled, "The Logic of Science, or Induction and Hypothesis." It was a series of twelve lectures which he gave in Marlboro Chapel, Boston on Wednesday and Friday evenings at 7:30 from October 24 to December 1, 1866. The subject of the lectures was the classification of all forms of reasoning deductively or from preconceived opinions. Though it was obvious that the advancement of the empirical and experimental sciences depended on the forming and testing of hypotheses, hypothesis was not understood as a distinct kind of inference or argument. The problem was to identify, distinguish, and name the categories of arguments and determine the relative strengths of the several kinds. He started with Kant's two kinds of judgment: analytic or the explicative; and synthetic or ampliative. Charles first adopted the second term of each pair, then, he turned the distinction between explicative and ampliative judgments into the distinction between explicative and ampliative arguments or inferences: those called deductive; and those commonly called inductive. He then arrived at a distinction between the logic of mathematics (deductive) and the logic of science (inductive). He further divided the latter into two kinds: inductions more strictly speaking, and what he called hypothesis that will both account for the puzzling data already obtained and serve to predict results of untried experiments or observations not yet made. He then connected the explicative arguments with the first of the three Aristotelian figures of syllogism, particularly with the mood *Barbara*; the hypothesis with the second

figure, particularly with the mood *Baroco*; and the induction with the third figure, particularly *Bocardo*. He thus arrived at three kinds of inferences in order of the validity or strength of the three kinds of arguments, from the weakest to the strongest: 1) first category, hypothesis, second figure; 2) second category, induction, third figure; 3) third category, deduction, first figure. Then he connected the three kinds of inferences with the three Aristotelian figures of syllogism and dropped the fourth figure and all its moods not as being invalid but as being indirect, and unsyllogistic. But since syllogism on the second and third figures are reducible to syllogism in the first, he asked himself if he concurred with Kant in his early tract, "On the False Subtlety of the Four Syllogistic Figure." This question led him to his first major discovery in logic: that every such reduction takes the logical form of an argument in the figure from which the reduction is made. He would later print his essay on this discovery under the title, "Memoranda Concerning Aristotelian Syllogism" (*W* 1.505-514) and mailed copies to logicians at home and abroad. Augustus de Morgan received it in London on December 29, 1866 initiating the exchange of papers with the English logician, whom Charles would visit in his London home on his first European visit. This early Charles Peirce forms part of a small international community of professional logicians.

He ended up this lecture series giving a semiotic analysis of the doctrine of the Trinity:

> As every soul of man is a relative philosophy so this symbol is the absolute unattainable philosophy. This is the Creator of the World since all is necessarily conformed thereto. A personal being

> for the same reason that all symbols are personal, but also further the well-spring of all personality since only by virtue of this Law does the unity of consistency become part of the finite symbol. this infinite Symbol being necessary denotes not the contingent facts of the universe but the absolute law in all its detail and unity to which the universe is subjected, but this law is essentially identical with the Symbol since it is, like every fact, the symbol of itself. The interpretant of the symbol like every interpretant is also essentially identical with the symbol; and finally the ground of the symbolization or the comprehension of the symbol, since it completely determines the symbol in all respects, is also essentially identical with it. Here, therefore, we have a divine Trinity of the object, interpretant and ground. Each fully constitutes the symbol yet all are essential to it. Nor are they the same thing as under different points of view but three things which attain identity when the symbol attains infinite information. In many respects, this Trinity agrees with Christian Trinity; indeed I am not aware that there are any points of disagreement. The interpretant is definitely the Divine *Logos* or word; and if our former guess that a Reference to an interpretant is Paternity be right, this would be also the *Son of God*. The *ground*, being that partaking of which is requisite to any communication with the Symbol, corresponds in its function to the Holy Spirit.[47]

Upon examination of Sarah Hunt Mills' letters to her husband Benjamin and other related manuscripts, Vericat during this period highlights, the increasing interrelation

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[47] C. S. PEIRCE, *W* 1.502-504. Italics his.

between Charles' work and that of his father. He observes the parallel progress of Charles' metaphysics and his father's work on the Nebulae hypothesis, and the progress in Charles' logic of relatives and Benjamin's linear associative logic. This parallelism in their works would last until his father's death.[48]

On May 19, 1869 Charles William Eliot, Charles' former chemistry professor and his brother James' classmate, was appointed to the Harvard presidency. President Eliot was exploring the possibility of creating a graduate school at Harvard. His first thought was to try to turn the University Lectures into sequences that would run through the academic year, with optional comprehensive examinations on each sequence at the end of the year. During the academic year 1869-70, he arranged two sequences: one in philosophy, where among those he enlisted was Charles Sanders Peirce,[49] and the other in modern literature. Charles gave fifteen lectures instead of the scheduled nine from December 14, 1869 to January 15, 1870 on "The British Logicians" from John Duns Scotus to John Stuart Mill. Only three manuscripts

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[48] Cf. J. VERICAT, *WACSP*, p. 45.

[49] The other names listed by Eliot were Francis Bowen, John Fiske, F. H. Hedge, J. E. Cabot, R. W. Emerson, and G. P. Fisher. Although the Harvard Graduate School was not established until 1890, with James Mills Peirce, Charles' older brother, as Dean; the experiment was later called "the germ of the graduate school." But from 1872 until the erection of the graduate school, Harvard had a small graduate department and James Mills Peirce, the secretary of the academic council, was its administrator.

(lecture one about early nominalism and realism; "lecture three" which was on Ockham, was actually the fifth one; and the lecture on Whewell delivered on Christmas eve, was probably the sixth) of the fifteen lectures are in the Peirce papers, since he expressed to President Eliot in a letter dated September 2, 1869 that he would not write the lectures.[50] William James, who attended one of his lectures had this impression: "I heard Chas. Peirce lecture (...) on British Logicians. It was delivered without notes, and was admirable in matter, manner and clearness of statement (...). I never saw a man go into things so intensely and thoroughly."[51]

Charles would continue this practice of giving lecture series throughout his career, culminating it with his 1907 lectures on "Logical Methodeutic" to the Harvard Philosophy Club. The other lectures he gave were: Lowell Institute Lectures on "The History of Science" in 1892; Cambridge lectures on "Reasoning and the Logic of Things" in 1898; the Harvard Lectures on "Pragmatism" in the spring of 1903; and the Lowell Institute lectures on "Some Topics of Logic" in the winter of 1903.

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[50] The editors of the *Writings of Charles Sanders Peirce* were able to confirm these from the Harvard University Archives who have the notes of the six lecture series on philosophy by Francis G. Peabody, although Peabody's notes on Peirce were only fourteen.

[51] Cf. R. B. PERRY, *The Thought and Character of William James*, vol. 1, Little, Brown and Co., Boston 1936, p. 534.

1.2.2. The US Coast Survey and the Academy of Arts and Sciences

The year 1867 was the most decisive year and most eventful in Charles' professional life. Charles was elected a Resident Fellow of the American Academy of Arts and Sciences. All in all, he presented five papers throughout the year, the first three were all about logic and whose collected offprints he would submit to William Torrey Harris, the editor of the first philosophical journal in the U: S., *Journal of Speculative Philosophy*, published quarterly in St. Louis. The third paper, "On the New List of Categories," captivated Harris, and thus started the correspondence that led to five contributions to its second volume.

Meanwhile his father had accepted, to the surprise of many, to be the third Superintendent of the Coast Survey, succeeding Alexander Dallas Bache who was incapacitated by a stroke in 1864 and died at the beginning of the following year. He retained his professorship at Harvard and conducted the business of the Survey from Cambridge, with Julius E. Hilgard as the Assistant-in-Charge of the Survey's Washington Office. The treaty of the purchase of Alaska by the United States from Russia involved the Coast Survey, the leading scientific agency of the government under Superintendent Peirce. It was asked by Congress to make a reconnaissance mission and gather reliable information regarding the natural resources of Alaska. A reconnaissance mission was also sent to Greenland and Iceland for its possible purchase. Superintendent Peirce sent his son Benjamin Mills Peirce to compile the report. Charles was also promoted on July 1, 1867, from aide to assistant, the rank next to the

superintendent, which he held for more than twenty-four years. That same year the Harvard Observatory received its first spectroscope and the first interesting observations it made were those of the auroral light. By arrangement with Joseph Winlock, the Observatory Director, Charles began to make astronomical observations for the Observatory. Previously, Charles had already done several contributions like, the observation of the annular eclipse of the sun at St. Joseph, Missouri with Observatory Assistant William Ferrel. By 1868, he became a regular contributor to the *Atlantic Almanac*, a work which lasted several years. Among his celebrated contributions was an article published in 1870 on the "Spectroscope" which contained a report about the newly discovered bright lines in the spectrum of the aurora borealis he observed in the spring of 1869 from the Harvard Observatory. He also began to review scientific, mathematical and philosophical books for the *Nation*, a work which lasted until 1908. Max Fisch says that in 1868 Charles became acquainted with modern experimental psychology, as represented by Weber, Fechner, Wundt, and Helmholtz. He carried such experiments with his student Joseph Jastrow in 1884, making him the first modern experimental psychologist in America.[52]

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[52] Cf. M. FISCH, *PSP*, p. 117. But according to Thomas Cadwallader in his article "Peirce as an Experimental Psychologist," *TCSPS* 11 (1975): 167-1865, Charles had already encountered it during his teens. His most probable source would be Lavater. His earliest psychological item can be found in a notebook whose entries were from 1853 to 1888, that

On August 7, 1869 the solar eclipse that was seen in America occurred with Charles and geologist Shaler being stationed at Bardstown, Kentucky. Their scientific observations, particularly on the sun's corona and protuberances prompted new theories as to the solar composition.[53] However, some skepticism among European astronomers regarding these theories arose so he refutes them on the solar eclipse of December 22, 1870. Determining that the optimum conditions for observation would be in the western Mediterranean, Superintendent Peirce began his preparations. He desired that as much as possible the same American observers of the 1869 eclipse should also observe the 1870 eclipse. Among the plans was to send someone to follow the path of totality from east to west for several months in advance, inspecting possible sites for observation parties and making the necessary arrangements. Superintendent Peirce chose Assistant Peirce for the job. His journeys to Europe will be narrated in detail later.

Meanwhile, Zina's feminist advocacy was gaining ground. Her series of five articles "Co-operative Housekeeping" appeared in the *Atlantic Monthly* when Charles' *Journal of*

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means to say he started writing about it when he was 14 years old. It was as early as 1862, that he began to read Wundt (*CP* 8.196-204).

[53] Cf. *Report of the Superintendent of the United States Coast Survey*, 1873, pp. 126-127, in C. S. PEIRCE, *Complete Published Works including Secondary Materials, Microfiche Collection*, K. KETNER et al (eds.), Johnson Associates, Inc. Greenwich 1977. See also *W* 2.290-293.

Speculative Philosophy series was appearing. She was elected president of the first "Woman's Parliament" on October 21, 1869 in New York City. In spite of this hectic scientific activity, Peirce found time to review Henry James, Sr.'s book entitled *The Secret of Swedenborg: Being an Elucidation of his Doctrine of Divine Natural Humanity.*[54] On the other hand, the Peirce family met tragedy as Benjamin Mills Peirce, working as a mining engineer died at Ishpeming, Michigan on April 22, 1870 for unrevealed reasons.

In 1871 Harvard College Observatory acquired a Zölner astrophotometer, and Director Winlock appointed Charles responsible for planning its use. Superintendent Peirce obtained an authorization from Congress for a transcontinental geodetic survey along the 39th parallel, to connect the Atlantic and Pacific coastal surveys with small initial appropriations. The fundamental problem of geodesy was that of the figure of the earth. The chief instruments for its determinations were gravity pendulums.

In mid 1872, J. E. Hilgard, acting assistant-in-charge of Survey's Washington office represented the US to the Paris conference which was looking for the creation of an international bureau of weights and measures, one that eventually took shape in 1875. In Hilgard's absence, Charles Peirce took over. The Assistant-in-charge of the Washington Office of the Survey was also the one in charge of Weights

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[54] Cf. C. S. PEIRCE, *W* 2.433-438.

and Measures Office, a branch of the Coast Survey until the creation of the National Bureau of Standards in 1901. His stay in Washington paved the way for his election into the Philosophical Society of Washington where presented six wide-ranging papers to the Society from 1871 to 1874.[55] On November 30, 1872 Assistant Peirce received a memorandum from Superintendent Peirce with these words:

> "You are hereby directed to take charge of the Pendulum experiments of the Coast Survey, and to direct and inspect all parties engaged in such experiments (...). In combination with the pendulum experiments you will investigate the law of deviations of the plumb line and of the azimuths from the spheroidal theory of the earth's figure."[56]

Assistant Peirce, then became a professional geodesist and meteorologist. Since it required him to spend most of his time away from Cambridge, he resigned from Harvard College Observatory and moved to Washington with Zina. A lot

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[55] He presented six papers: "On the Appearance of Encke's Comet as Seen at Harvard College Observatory," Dec. 16, 1871; "On Stellar Photometry," Oct. 19, 1872; "On the Coincidence of the Geographical Distribution of Rainfall and Illiteracy, as shown by the Statistical Maps of the Ninth Census Reports," Dec. 21, 1872; "On Logical Algebra," May 17, 1873; "On Quarterrions, as Developed from the General Theory of the Logic of Relatives," Jan. 3, 1874; and "On Various Hypotheses in Reference to Space," Mar. 14, 1874. See C. S. PEIRCE, *W* 3.

[56] Quoted from M. FISCH, "Introductions," *W* 3.xxiv.

different from Cambridge, Zina resisted first. Soon she spent as little time as she decently could, leaving her husband to his own devices while she pursued her own interests. Charles also got so absorbed with this new assignment that he spent even his odd hours totally immersed in his work. He wrote to A. & G. Repsold and Sons in Hamburg, Germany to order one of their reversible pendulums suitable for absolute determinations of gravity. He got a reply saying that it would only be ready in the spring of 1875 owing to the accumulated unfilled orders for other instruments to be used for the observation of the transits of Venus in 1874 and 1882.

The next two years, Charles conducted parties making observations of gravity with nonreversible, invariable pendulums with conical bobs in Northwestern Massachusetts, at Northampton and Cambridge. He also continued photometric researches which he had started in Harvard College Observatory using Zölner astrophotometer attached to a telescope inside a portable observatory, with an aide outside recording his observations. In August 1873, he also tried experimenting under unfavorable conditions to "weigh the earth" at the top and bottom of the central shaft of the Hoosac railway tunnel near North Adams, Massachusetts. Zina deplored the rough and filthy life necessitated by the location of the tunnel. The following year they moved out and occupied lodgings in the nearby village of Florida.

On his return from his first trip to Europe and Washington in 1872, he founded the Cambridge Metaphysical Club together with Chauncey Wright, William James, Nicholas St. John Green, Oliver Wendell Holmes, Jr., John Fiske, Francis Ellingwood Abbot, Henry Ware Putnam, Francis Greenwood

Peabody, William Pepperell Montague and Joseph Bangs Warner. Charles came to know Wright during his undergraduate years recalling him as a philosophical celebrity always present in their meetings and he described him as the boxing master whom he used to face to be severely pummeled.[57] Charles acquaintance with James dates back to their Lawrence Scientific School days and they had been neighbors since 1866 when the James moved to Cambridge. Besides, James together with Holmes attended his Lowell Institute lectures. Abbot was a former classmate in Harvard while Peabody and Warner had attended his lectures on the British logicians and had studied Kant with him privately. Finally, Fiske was a colleague in the Harvard lecture series. Of the club members six were lawyers (Holmes, later Supreme Court justice, Fiske, who was also a historian and philosopher, St. John Green and Warner were Cambridge practicing lawyers, Montague, and Putnam), three were scientists (Wright, Peirce, and James who was then teaching anatomy and physiology), and two were theologians (Abbot and Peabody). It was in this club that Pragmatism was born. James attributed its paternity to Charles Peirce who in turn called St. John Green its grandfather for the latter's insistence on the importance of applying Alexander Bain's definition of belief as "that upon which a man is prepared to act," from which "pragmatism is a mere corollary."[58]

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[57] Cf. C. S. PEIRCE, *CP* 5.12, c. 1907.

[58] Cf. C. S. PEIRCE, *CP* 5.12, c. 1907.

On February 2, 1874, the book by William Stanley Jevons, *Principles of Science* was published where the earliest acknowledgement of the importance of Charles S. Peirce's contribution to logic can be found.[59] During the spring of 1874, Superintendent Peirce gave up his superintendency of the Coast Survey to become its consulting geometer. He maintained his influence within the agency without being burdened with the administrative responsibilities. By the end of 1874, the new superintendent of the Coast Survey, Naval Captain Carlile Patterson would send Assistant Peirce to fetch the A. & G. Repsold and Sons reversible pendulums from Europe. Assistant Peirce was to spend at least one year in Europe in order to elevate the science of geodesy in the United States at par with European standards. By early 1875, Charles was included in the Committee on Units of Force and Energy of the American Metrological Society, which by this time was investigating the new unit of force (the dyne). In the Spring of 1875, he met William H. Appleton, the publisher of the *Popular Science Monthly* to which he would become a regular contributor.[60]

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[59] Cf. M. FISCH, *PSP*, p. 125.

[60] The most relevant ones are: "Illustrations of the Logic of Science" series namely: "The Doctrine of Chances" (*W* 3.276-257), "The Probability of Induction" (*W* 3.290-305), "The Order of Nature" (*W* 3.306-322), "Deduction, Induction and Hypothesis" (*W* 3.323-338), "The Fixation of Belief" (*W* 3.242-257), and "How to Make Our Ideas Clear" (*W* 3.257-276). These last two essays where also published in its French version in *Revue Philosophique de la France et l'Étranger*.

In October 1876, returning from his second European trip, he separated formally from his wife Zina, who deserted him in Paris. He moved to New York to prepare for the initial pendulum station, to be set up at Stevens Institute in Hoboken, New Jersey, which at that time had excellent laboratory facilities and a physics faculty of high standing. By February 1877, beside his gravimetric experiments, he developed a spectrometer, using a diffraction grating developed by physicist Lewis Rutherfurd of the Stevens Institute, with which he intended to determine an exact standard for the meter by using the wavelength of sodium light. He was also nominated by his friend, William James, for the professorship in logic and mental science to the newly opened Johns Hopkins University. On April 20, 1877 he was elected to the National Academy Sciences[61] and was made member of its committee on weights, measures and coinage. Shortly before his nomination for membership he received grants from the Bache fund of the Academy for his experiments which he reported in his "Notes on the Sensation of Color" published both in the US and England. In Autumn, he went to Europe again to give a report of his findings at the

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[61] Charles submitted thirty-four papers to the National Academy of Sciences from November 1878 to November 1911, the first of which is "On the Acceleration of Gravity at Initial Stations in America and Europe," (Cf. *Report of the Superintendent of the United States Coast Survey* 1876, pp. 202-337, in C. S. PEIRCE, *Complete Published Works including Secondary Materials, Microfiche Collection*, K. KETNER et al (eds.), Johnson Associates, Inc. Greenwich 1977.)

International Geodetic Association conference held in Germany. During the winter months of 1877 and the spring of 1878, he continued his pendulum experiments and those on his self-designed spectrometer by which he proposed to use a wavelength of light to increase the accuracy of measuring the meter. He was preparing to set a station in the Rocky Mountains, but funds did not make it feasible. In the summer he went to Cambridge to initiate experiments in the White Mountains or the nearby Mt. Washington. Brent says that his lingering in Cambridge had to do with Juliette Pourtalai,[62] a mysterious lady he probably met in his long Paris stay.

In 1879 Charles' initial concern was to get fieldwork underway to determine the disturbing effect of the Appalachian mountains on geodetic operations which he completed at the York station in Pennsylvaniain 1880. He occupied until mid-August the Allegheny (now Pittsburgh) Observatory in Pennsylvania while its director, Samuel Langley was temporarily off to Mt. Etna. There, he coordinated the pendulum operations completing them in March. In June, he accepted the appointment as part-time lecturer of Logic at the newly created Johns Hopkins University. Thus, he pursued two careers that lasted for

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[62] J. BRENT, *CSPL*, p. 123. Nathan Houser has a different version: Charles probably met Juliette within the first year of his separation from Zina at the Brevoort House, a European-styled hotel, where he usually stayed every time he was in New York City. He was well known to the manager of the hotel who introduced Charles and Juliette on the occasion of a great ball. See *W* 4.xxii.

almost five years: as a scientist in the most prestigious scientific agency in America; and as a teacher and scholar in the most advanced American school for graduate studies. These two careers made him a regular commuter on the Baltimore & Ohio railroad between Washington and Baltimore during these years. In addition to the measurements of gravity, he made observations on the detection of the flexure, and conducted experiments where the standard pendulum knife was replaced by small steel cylinders acting as bearings. The results showed that the cylinders increased instead of reducing friction.[63] In between these fieldworks, Charles completed the projections of the first quincuncial map. The quincuncial projection allowed for repetition of the whole sphere in transposed positions on the map so that any location might be viewed as occupying a central position relative to the rest of the earth.[64]

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[63] The results of these fieldworks and other scientific endeavors were reported in the meetings of the National Academy of Sciences: "On the Method of Swinging Pendulums for the Determination of Gravity proposed by M. Faye"; "Comparison of the Meter with Wavelengths"; and "On the Ghosts in Rutherfurd's Diffraction-Spectra."

[64] Charles' quicuncial projections appeared in an appendix to the *Proceedings of the American Metrological Society* (May 1879), *American Journal of Mathematics*, and in the 1876 Coast Survey *Report* in C. S. PEIRCE, *Complete Published Works including Secondary Materials, Microfiche Collection*, K. KETNER et al (eds.), Johnson Associates, Inc. Greenwich 1977. See also *W* 4.68-71.

On April 1880 Charles sailed for Europe on his fourth assignment staying supposedly until January 1881 but was recalled home in late July because of his father's grave condition. He reached in Cambridge early August where he stayed until his father's death on October 6, 1880. Benjamin Peirce's death affected Charles profoundly, both personally and professionally. He no longer had his father's reputation to protect him and to advance his professional career. The elder Peirce had been so highly regarded in scientific and academic circles, that Charles was always received with consideration. With his father's death, this protective influence ended and Charles was left to make it on his own. He soon began to behave erratically against his best interests. He decided impulsively to quit logic and philosophy and sell his library, a decision he soon regretted. Along with his brother James Mills and the encouragement of Sylvester, Peirce turned to his father's writings hoping to get more of them in print. He spent the rest of the year editing and annotating his father's *Linear Associative Algebra*. Mathematics began to occupy him more frequently than ever before which was also enhanced by the influence of the mathematical community in which he found himself at Johns Hopkins University. He already was as before a talented mathematician accomplished enough to be included in the small circle of scientific men in America who contributed to sciences mathematical theories.[65]

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[65] Other names that can be included in this group are Simon Newcomb, Asaph Hall, and George Hill, all mathematical astronomers and former

Not long after his father's death, Carlile Patterson, the superintendent that succeeded Professor Peirce in the Coast Survey, passed away on August 15, 1881. With the death of Patterson, Peirce lost his only remaining defender in the Coast Survey. He feared a change for the worse as expressed in the eulogy he wrote: "No one was so earnest as he to secure to the Survey the labors of men of purely scientific, and especially mathematical, attainments and abilities."[66] The appointment of Julius Hilgard sparked disaffection between Peirce and the Coast Survey.

During the first half of 1881 Peirce concentrated on the construction of his four invariable reversible pendulums.[67] He had invented the pendulums in order to ascertain the effects of viscosity. He also continued with the gravity determinations at

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students of his father.

[66] C. S. PEIRCE, "Memorial Tribute to Carlile Patterson," *Report of the Superintendent of the United States Coast Survey* 1882, p. 563 in C. S. PEIRCE, *Complete Published Works including Secondary Materials, Microfiche Collection*, K. KETNER et al (eds.), Johnson Associates, Inc. Greenwich 1977.

[67] Peirce pendulum no. 1 was used in the Arctic, in Franklin Bay above the 80th parallel by one of the two expeditionary parties of the U. S. led by Lt. Adolphus Greely. The 1879 meeting of the International Geodetic Association in Hamburg passed a resolution to man polar stations for one year to conduct scientific observations and pool their results. The U. S. was among the eleven nations to agreed to put up a polar station. The others were Austria, Denmark, England, Finland, Germany, France, Holland, Norway, Russia, and Sweden.

Washington, Baltimore and Cambridge where his investigations of error due to the flexure of the stand and receiver were too. He likewise experimented with the Faye-Peirce plan of swinging two pendulums from the same support. In August he attended the meeting of the American Association for the Advancement of Science in Cincinnati and presented a paper: "Comparison between the Yard and the Meter by means of the Reversible Pendulums." Then he was made a member of the association and subsequently was appointed to the standing committee on weights and measures. The following year, he continued progressively in his two careers as geodesist in the Coast Survey and at the same time as lecturer of logic in Johns Hopkins University. He was also recruited by Benjamin Eli Smith to be a contributor to the *Century Dictionary*. Peirce met Benjamin Eli Smith whom he met when the latter came to Johns Hopkins University as a graduate assistant. Peirce was given the principal responsibility for terms in logic and philosophy, mathematics, mechanics and astronomy, weights and measures, and all words related to universities. Peirce acted as host to John Herschel of the India Survey who conducted fieldworks at selected US stations to connect English and American pendulum works. Peirce also conducted fieldworks and gravity determinations of his own swinging both the Repsold and nos. 2 & 3 self-designed pendulums in Washington, Baltimore, Hoboken, Montreal, and Albany. Then he was assigned to assist the French party sent to observe the December 6, 1882 transit of Venus where he helped theme in Savannah, Georgia and Fort Marion in St. Augustine, Florida stations. Soon, beset with complications due to equipment problems, Peirce felt the strain of

overcommitment. He got delayed results in his fieldworks causing him strained relations with the Survey.

In the international scientific community, Peirce's name was recognized more in astronomy, geodesy and logic while within the US his recognition was minimal. Professionals of the American academy, with the exception of William James and Josiah Royce, were unable to perceive Peirce's originality of mind and rejected him more easily for his eccentricities, unpredictable character and lack of comprehension of his major ideas which "were almost a century ahead of his time."[68] His recognition in Europe and his lack of it in the US was a clear expression of the comparatively low level of American philosophy and science at the time.

During his trip to Montreal, Canada to conduct pendulum experiments at the McGill College Observatory, he was accompanied by Juliette Pourtalai[69] and stayed with him for a short time in Montreal before traveling with her maid to Quebec City. When Peirce left Montreal after completing his work, Juliette accompanied him again making a stop in

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[68] J. BRENT, *CSPL*, p. 137.

[69] The true identity of Peirce second wife is still a mystery to most Peircean scholars. Others listed her surname as Froissey or Froissy. Vincent Potter said that she was from Nancy, France. See V. POTTER, "Charles S. Peirce: Action Through Thought— The Ethics of Experience," *Doctrine and Experience: Essays in American Philosophy*, V. Potter (ed.), Fordham University Press, New York 1988, pp. 87-103.

Albany for Peirce to visit the Dudley Observatory staying there at the same hotel. Peirce's lack of discretion with his relation to Juliette did not go unnoticed especially to Superintendent Julius Hilgard.

On the first months of 1883, Peirce continued his fieldworks at the Smithsonian and at Hoboken swinging pendulums 2 (a meter pendulum) and 3 (a yard pendulum) to compare the yard and the meter. With regard to his private life, emotions were running high. The final decree of his petition to divorce Zina Fay for desertion was drawing near. He began the divorce proceedings in September 1881. Finally, divorce was granted to them on April 24, 1883. Two days later, Peirce married Juliette Annette Pourtalai[70] in New York city. A day before the decree of divorce was granted, he received an instruction from Superintendent Hilgard to go to Europe to help connect the English and American pendulum work.[71] This fifth European sojourn gave Peirce and his new bride the opportunity to honeymoon away from the reproachable societies of Baltimore, Cambridge and Washington. When they returned in September, the newly weds settled in Baltimore leasing a house for two years and

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[70] Charles S. Peirce was then forty-four and his new bride listed her age as twenty-six.

[71] Brent quotes a letter of Peirce to Hilgard where he states his personal reason of the travel: a pressure from Juliette that she would not marry him if they didn't go to Paris to repeat the ceremony. See J. BRENT, *CSPL*, p. 144.

Peirce resumed the nerve-racking burden of both teaching his courses in the university and his pendulum works for the Survey at the Washington Office and at the Smithsonian Institution. He also resumed his work writing definitions for the *Century Dictionary* and with this project in mind, he added a new course in the semester that had just begun on philosophical terminology. This required the borrowing of books a dozen at a time from the Peabody library most of them in the collection he had sold to Johns Hopkins in 1881.

The year 1884 commenced badly for Peirce. On January 26, 1884, he was informed by Johns Hopkins University president, Daniel Gilman, that his contract would not be renewed. Finding it hard to believe that his academic days there were numbered, he tried to persuade the board to let him continue by proposing a lecture course on the Logic of Religion intended to state some things on the credibility of various beliefs. But the Board's decision to rid him from Johns Hopkins was firm and irrevocable. He was formally and diplomatically dismissed from the Johns Hopkins University in early April, 1884, asking all part-time lecturers like him to resign. The following year, Peirce was the only one not reinstated for lectureship. The reason for his dismissal was not clear. Brent, examining the Gilman's correspondence files at the Johns Hopkins University, says that it was the lack of discretion on the part of Peirce in carrying his love affair with Juliette before his divorce petition was granted. He was then considered by the Baltimore society as a married man with a

mistress. His second marriage was considered as a public attack to the sanctity of marriage.[72] Nathan Houser has a softer version: "Peirce dismissal was a sign that society could not tolerate his disregard for its conventions. His unique and somewhat arrogant individuality was too much at odds with the tenor of the times, and especially the conservatism of Baltimore."[73] Another explanation is that during those days doctrinal differences had always been significant in determining university appointments. The American academic world was then governed by fundamentalist puritans who saw Peirce as an "unsafe" and "unorthodox" man.[74]

For days, weeks and months, Peirce was in a near state of shock. Soon though, he focused his attention to his scientific work in the Coast Survey. In the Smithsonian, he received instructions from Hilgard to go to Fort Monroe for gravity determinations and proceed to the mountains of West Virginia and North Carolina to reconnoiter for more stations. On his return to Washington, Peirce was placed Officer-in-Charge of the Office of Weights and Measures. In the early part of 1885 as head of this office he traveled to Philadelphia, New York,

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[72] Cf. J. BRENT, *CSPL*, p. 150f.

[73] N. HOUSER, "Introduction," *W* 5.xxi.

[74] Cf. B. KUKLICK, *The Rise of American Philosophy: Cambridge, Massachusetts 1860-1930*, Yale University Press, New Haven 1977, p. 1-27. See also G. MARSDEN, *The Soul of American University: From Protestant Establishment to Established Nonbelief*, Oxford University Press, New York 1994, pp. 99-262.

Providence, Hartford, and Boston. He also met with electricians and manufacturers of gauges and machinery in order to determine how to meet the need for metrical standards as set out in the resolutions of the US Electrical Conference. In the last quarter, he attended the meeting of the National Academy of Sciences held in Newport where he presented three papers.[75] At the meeting of the American Metrological Society held in Columbia College in New York, he read a paper on the determination of gravity and participated actively in the discussions about the adequacy of standards of weights and measures in the US giving the Society a detailed information of some deficiencies in the current system. As a result, the society passed a resolution calling for the appointment of a committee to advise Congress and the Secretary of the Treasury on the need for establishing an efficient national bureau of standards.

Peirce was barely recovering from his dismissal from the John Hopkins when the central federal government office had a change of guard, and he had to face an episode of bitter events. When Grover Cleveland,[76] the Democratic party

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[75] These papers were: "On Gravitation Survey" (*W* 5.1-23); "On Small Differences of Sensation" (*W* 5.122-135), co-authored with Joseph Jastrow; and "On the Algebra of Logic" (*W* 5.162-190).

[76] Stephen Grover Cleveland (1837-1908) was a former lawyer in Buffalo, New York, assistant district attorney and later sheriff of Erie county, then Mayor of Buffalo and then Governor of New York, before being elected as the Democratic candidate for the presidency against Republican James Blaine who was running for re-election. He was a

candidate was elected to be the 22nd President of the United States of America, federal science in America was entering a new age. Democratic party leaders in the House of Representatives expressed chronic irritation at the expenditures of science. A feature of the Cleveland cabinet was the strong emphasis on bureaucratic methods to search for and stop scandal in the federal agencies, and the Coast Survey was pinpointed to be exemplified under a watchful, scrutinizing policy of government. Before the new president took office, a joint committee of the US Senate headed by Iowa Senator William Allison was investigating also the four federal scientific agencies: the Geological Survey; the Coast and Geodetic Survey; the signal service of the US Army; and the Hydrographic Office of the US Navy, examining their structures of these agencies for economy, efficiency, legality, and utility. Peirce was among the ten Coast Survey employees called to testify. His testimony to the Allison Commission and the resolution of the American Metrological Society were the first two steps toward the creation of the National Bureau of Standards in 1901.[77] Peirce was in the Key West conducting residual gravity experiments when the new president took office in March, and there was an anti-scientific sentiment

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firm believer in clean government and was famous for driving out all traces of corruption in the federal government. He's the only American President to date to be defeated by the opposition party after one term and then come back to win again four years later. He was also the first democratic president after the civil war (after 24 years).

[77] Cf. M. FISCH, *PSP*, p. 409.

reigning among the democrats.[78] From there he was directed by Hilgard to make a reconnaissance for an east-west line along the forty-third parallel and as far as the Mississippi River. Peirce chose Ann Arbor, Michigan, Madison, Wisconsin, and Ithaca, New York. On July 25, 1885, four days before his arrival at Ann Arbor, President Cleveland fired Hilgard for inefficient handling of the Survey, misappropriation of federal funds and alcoholism. He appointed Internal Revenue clerk Frank Thorn to the post and to head the investigating committee where part of the investigation report dedicated to Peirce accused him "that he had been performing pendulum experiments 'without restriction or limitation' and that the 'meager value' of his work was substantially destroyed by its cost."[79] Naturally, Peirce was enraged by this underestimation of his work and protested strongly. He wrote a letter of rebuttal, which the *New York Evening Post* and *Science* published, denying all charges and tendered his resignation from the Survey on August 9. The scientific community came to his defense, even within the Survey. Assistant Charles Schott wrote Benjamin Colonna, Superintendent Thorn's deputy that the acceptance of Peirce's resignation would result "in great loss to the higher scientific work of the Survey, and in particular since he

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[78] Cf. MANNING, T., "Peirce, the Coast Survey, and the Politics of Cleveland Democracy," *TCSPS*, 11 (1975):187-94. See also J. BRENT, *CSPL*, Ch. 3.

[79] HOUSER, N., "Introduction," *W* 5.xxix.

has been able to build up, at home and abroad, a reputation of which the Survey may be proud."[80]. The American Association for the Advancement of Science, which was having an executive meeting at Ann Arbor that time, also passed a resolution supporting him.

Although Superintendent Thorn substantially modified his charges against Peirce to extravagance and procrastination, the scandal put a strain on him. Even though his scientific reputation was vindicated, the combined effect of this scandal and his dismissal from Johns Hopkins damaged his reputation. As a consequence, he would never obtain a fitting employment from then on.

Peirce distracted himself from the scandal in the company of scholars in Ann Arbor, Madison and Ithaca. He took time out to write his philosophy most probably induced by the publication of Josiah Royce's *Religious Aspect of Philosophy*. In the book, Royce argued for the existence of God from the possibility of error and defended his position against the "modern Thrasymachus" who held that all we can conclude from the *possibility* of error is the *possibility* of God. Peirce recognized himself in the guise of Thrasymachus and wrote a long review for the *Popular Science Monthly* but publication was withheld by the editor (*W* 5.221-234). He made two more reviews of books with religious matter: Raymond Perrin's

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[80] C. Schott to B. Colonna, 14-VIII-1885; quoted in J. BRENT, *CSPL*, p. 170.

Religion of Philosophy for the *Nation* (*W* 5.257) and John Fiske's *The Idea of God* (*W* 5.260-261).[81] He wrote these reviews in-betweens his field operations in the Library Hall of the University of Wisconsin in Madison. From there, Peirce and his team left for Ithaca passing by Niagara Falls, where they were stranded for fifteen days due to payment delay. In Ithaca he performed experiments at Cornell University finishing them by the end of January 1886. Then the Peirces proceeded to Cambridge to visit his family. His brother Jem prepared a reception to welcome him home. He shared his latest logical theory of Evolution to his old friends William James, Josiah Royce, John Fiske, Francis Abbott, and Ralph Barton Perry. Then he returned to Washington where he saw Superintendent Thorn for the first time who probably gave him restrictions for his pendulum experiments and advised him to dedicate more time completing his long-overdue report on gravimetric experiments. These restrictions aggravated his dislike for the Survey. Meanwhile Peirce and Juliette decided to reside in New York.

In 1887, thoroughly discontented with the Survey and pressured constantly by Thorn for the gravimetric reports, he threatened to resign from it venturing on teaching Logic courses by correspondence. It did not prosper though so he did not respond to Thorn's inquiry about his resignation.

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[81] Other reviews he made during this period were Thomas K. Abbott's translation of Kant's *Introduction to Logic* (W 5.258-259) and William Clifford's *Common Sense of the Exact Sciences* (*W* 5.254-256).

Other reasons were Juliette's recurrent illness and his unfinished definitions for the *Century Dictionary*. In April, Peirce informed Thorn by letter that he and his wife were moving to Milford, Pennsylvania, a move considered by Peircean scholars as an escape from the tribulations of the world affairs and an act of voluntary seclusion. Brent gives four reasons for the transfer: "a) the move to Milford represented the road to wealth and prestige through the patronage of the society of new wealth. Milford was then a country estate for the rich and European aristocrats. Peirce was acquainted with them through the Century Club he used to frequent in New York city (...); b) He had also the desire to establish a household in keeping with Juliette's need for care and their luxurious style and inclination (...); c) Peirce also intended to turn his Milford estate when developed, into a summer school in logic and philosophy, or a summer institute to educate the wealthy and powerful in subjects appropriate to their responsibilities (...); and d) Peirce intended to spend as much time as he could in writing out his philosophy in the study of his new home, filled with books he had collected over the years to support that purpose (...)."[82]

On October 12, 1887, Sarah Mills Peirce, Peirce's mother, died after a ten year lingering illness leaving Peirce a sufficient inheritance to buy properties and to begin building up his country estate. By November he was able to finish his report on the Arctic mission led by Col. Greeley, now an Army

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[82] J. BRENT, *CSPL*, pp. 186-187.

general, who personally took some of the observations Peirce made. Peirce was not blaming him nor Sgt. Israel who died in that Arctic mission. He attributed the inconsistencies of the findings to the accident met by the team. The following March of 1888, Peirce's maiden aunt, Charlotte Elizabeth, died leaving him her excellent collection of French novels and a small inheritance. With the two inheritances he received together with Juliette's own money, they began acquiring property and started reconstruction of the farmhouse which they would later call as «Arisbe».

In early 1889, Thorn and his deputy- Colonna, continued to press for the long-overdue reports. They were determined to terminate him of his connection with the Survey, but they could not find any competent successor. In the meantime, Juliette had been increasingly ill, so Peirce asked for a two week leave to take her to New York where she was diagnosed with tuberculosis. Peirce sent her to Europe the following winter and she came back the next spring with a little improvement.

Due to the change in the federal government, Thomas Mendenhall replaced Thorn as Superintendent of the Coast and Geodetic Survey in July 1889. Unlike Thorn, Mendenhall was a scientist, a former physics professor at the University of Tokyo and a pendulum researcher in Japan. Peirce and Mendenhall met personally in New York and had a long talk together where Peirce discovered that Mendenhall was one of the modern scientists whose principal interest was for administration of science and not for its practice. Before the year's end Peirce submitted the major part of his long-overdue report. Mendenhall in turn, sent it to his mentor John

Newcomb who criticized it severely but Mendenhall shielded Peirce telling Congress that the thousands of dollars spent on Peirce and the pendulum experiments were paid off as seen in their important results,[83] assuring the body that Peirce, given ample time and freedom from interference, would finish his report.

But when the remaining part of the report failed to appear after almost a year, Mendenhall asked for Peirce's irrevocable resignation from the Survey effective December 31, 1891, thus, ending more than thirty years of service to the Survey, an event he had been expecting in the last six years.

1.2.3. The European sojourn

Assistant Peirce was chosen to do the preliminary assignment of scouting for strategic location in Europe in preparation for the total solar eclipse of December 22, 1870. On June 18, 1870, he sailed from New York with his brother James Mills and spent more than six months in Europe. He took with him copies of "Description of a Notation for the Logic of Relatives, resulting from an Amplification of the Conceptions of Boole's Calculus of Logic (DNLR)" and a

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[83] In the studies made in 1965 by Victor Lenzen about pendulum research of the past century, he examined with care Peirce's long report which was lost for more than eighty years. His evaluation: "Peirce's report was the best work of its kind in the nineteenth century." For further details see V. LENZEN, "An Unpublished Scientific Monography by C. S. Peirce," *TCSPS* 5 (1969): 5-24.

printed memoir of the American Academy of Arts and Sciences. DNLR is one of the most important works in the history of modern logic, "for it is the first attempt to expand Boole's algebra of logic to include the logic of relations."[84] This paper may have had risen out of an argument between Charles and Superintendent Peirce over which discipline held primacy: logic as sustained by Charles, or geometry as held by his father. On July 11, 1870 he personally delivered a copy of his father's *Linear Associative Algebra* and a copy of his own DNLR with a letter of presentation from his father to Augustus De Morgan's residence in London. He also gave a copy to William Stanley Jevons who, together with De Morgan, was a major figure in the development of exact logic. Robert Harley received a copy too, directly or indirectly, for he included it in his discussion at the meeting of the British Association for the advancement of Science in September. Peirce spent most of the month of July in London and from there, he continued his journey following the eastward route of the eclipse to Rotterdam, Berlin, where he visited his sister-in-law, Amy Fay, then to Dresden, Prague, Vienna, Pest, Varna and Constantinople. Afterwards, he began moving westward along the path of totality from Greece, Italy, and Spain.

He sailed from Thessaly to Messina, Sicily on September 15, 1870. In Sicily he visited Giardini and Taormina admiring the beauty of nature looking across the sea at the prominent

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[84] D. MERRILL, "Introduction," *W* 2.xlii.

shores of Calabria and in the opposite direction the majestic and enormous Mt. Etna, commenting that it was worthwhile to see such things which no art can reproduce. Then he proceeded to Catania, got impressed with a beautiful bust of Faustina and commented that it was only he and Marcus Aurelius who had appreciated this great creature. He then took the train to Lentini where he contracted fever and continued to Syracuse. After ten days in Sicily, he proceeded to Naples, stayed there for two weeks making excursions to the remains of the metaphysical town of Velia and Vallo, reminiscing his readings of Parmenides and the ancient logician Zeno.

From there, he continued his journey to Rome. The Eternal city by that time had just adjourned the Vatican Council I after approving the first two dogmatic constitution *Dei filius* and *Pastor aeternus*, which contains the dogma of the infallibility of the Pope. [85] It would never resume though for fear of the invasion of the Italian troops. The Pontifical State had just lost its military protection when the French troops assigned there were recalled after the proclamation of the Franco-Prussian war. Two months before Charles' arrival to Rome, the king of Piamonte-Cerdeña, Victor Emmanuel II of Savoy publicly proclaimed his intention to invade The Eternal City. On September 20, 1870, Italian troops invaded the Pontifical

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[85] Cf. VATICAN COUNCIL I, Dog. Const. *Pastor aeternus* (18.VII.70); *DS* 1821-1840.

State and was annexed to the kingdom of Italy.[86] Peirce later commented on these two events in letters he sent to his mother and his aunt Lizzie. In a letter dated October 14, 1870, he gave his mother a tour through ancient Rome, admiring its buildings, Palazzo Doria and Palazzo Barberini, Santa Maria Maggiore as "one of the finest and largest in Rome," St. Peter's Basilica "wonderful and great indeed (...) it is the enormous size and perfect proportions... that impresses one," its paintings and sculptures, referring to the works of Antonio Canova —"I think Canova great— very great." He conveyed also his thoughts about religious politics favoring the king of Italy over the Roman Pontiff. Then he continued giving his plan of actions.[87] He stayed there for eleven days before proceeding to Florence to embark for Spain where he spent the next two weeks.

According to Jaime Nubiola's research about Peirce's stay in Spain, Charles left Florence on October 28, 1870 to start his Spanish «*hurry-skurry*» arriving by ship most probably at the port of Malaga on the first days of November. He went to Marbella and suggested that the south of Spain was the best place to observe the eclipse because of the few rainy and

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[86] Cf. G. REDONDO, *Historia de la Iglesia*, vol. 3, Ediciones Palabra, Madrid, 1985, pp. 126-137.

[87] C. S. PEIRCE, *L* 341, 1870 and *L* 337, 1870. For a more detailed information of Peirce's stay in Italy see C. KLOESEL, "Scattered Remarks on Peirce and Italy," *Peirce in Italia*, M. Bonfantini-A. Martone (eds.), Liguori Editore, Napoli 1993, pp. 87-99.

better sunny days. He then made a hurried visit to Granada, whose Alhambra made a lasting impression on him. He recalled its Arabic decorations many years later. It is also probable that he went to Sevilla, Cadiz, and Jerez —the second site he recommended, where a second group of American observers led by Winlock posted to observe the natural phenomenon, before initiating the north-bound route by train passing through Madrid and Irun (Barcelona was suffering at that time from the yellow fever epidemic). On his way back to Italy he joined his wife Zina Fay who was with Superintendent Peirce. In Chambéry, Savoy, he mailed a letter dated November 16, 1870 to his mother commenting that he had heard eighteen distinct languages spoken, seventeen of them (including Basque) in places where they were the languages of everyday speech and that the Spaniards speak as if they had pebbles in their mouth making it difficult to catch the distinctions of their sounds. He also mentioned the impression he had of a statue by a Madrid artist of the time, the three souvenirs he bought and said that Spain was a good place to buy antique articles at a low price.[88]

Back in Italy, he went to Turin, Milan and Venice, making a quick trip to Graz and Vienna, and back to Venice, Florence, Rome, and Naples— the meeting point of several

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[88] C. S. PEIRCE, *L* 341, 1870. For a more detailed information of Peirce's stay in Spain see J. NUBIOLA, "Peirce y España: Hacia una mejor comprensión," *Semiotica y Modernidad*, Paz, J. (ed.), Servicio Publicacións Universidade da Coruña, La Coruña 1994, pp. 183-191.

parties heading for Sicily to observe the solar eclipse. Some fifty scientists and photographers from Italy, England and the U. S. descended upon Catania, Syracuse and Mt. Etna for the December 22, 1870 solar eclipse. According to the report of Superintendent Peirce, one of the American stations "was about three miles north of Catania, at the villa of the Marquis di San Giuliano (...) Mr. C. S. Peirce observed with a polariscope and obtained good results."[89] Charles had to borrow a spectroscope at the last minute because his had been shipped to Jerez by mistake. Despite minor problems, the scientific expedition was a success. It largely validated the American observations made the year before in Bardstown, Kentucky, that the solar corona not only radiates but reflects light to the earth. Herbert, Charles' younger brother was also there, so with Zina, Charles' wife, who had a particularly pleasing success in witnessing and reporting an unusual effect in the corona of the sun.[90]

The Peirces then went back to Naples but Charles continued traveling going back to Rome, Florence, Milan,

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[89] *Report of the Superintendent of the United States Coast Survey*, 1870, p. 230 in C. S. PEIRCE, *Complete Published Works including Secondary Materials, Microfiche Collection*, K. Ketner et al (eds.), Johnson Associates, Inc. Greenwich 1977.

[90] Cf. *Report of the Superintendent of the United States Coast Survey*, 1873, pp. 125-127 in C. S. PEIRCE, *Complete Published Works including Secondary Materials, Microfiche Collection*, K. Ketner et al (eds.), Johnson Associates, Inc. Greenwich 1977.

Turin, Susa and Genoa. Then he proceeded to Germany, returning to America on March 7, 1871. This expedition was Charles' first experience of large-scale international scientific cooperation, and it illustrated to him the importance of the community of inquiry in re-evaluating and validating its hypotheses.

Charles crossed the Atlantic Ocean for the second time, accompanied by Zina and his aide in the Survey, Henry Farquhar, primarily to receive the delivery from A. & G. Repsold and Sons in Hamburg of the reversible pendulum he ordered way back in 1872, and to study the European techniques of gravimetric research. They left New York on April 3, 1875, reached Liverpool in mid-April and spent the next week sightseeing and living well.[91] Charles consulted a number of British scientists, including the renowned physicist James Clerk Maxwell, who agreed with his views about the characteristics of the resistance affecting pendulums at the Cavendish Laboratory in Cambridge, England. He also questioned instrument makers and swung the Coast Survey pendulum at Kew Observatory to compare it with the swings he made in the US. He also had the opportunity to talk with and impress, the great mathematician, William Kingdon Clifford, about his logic of relatives. Then they left for Germany in late May and went to Hamburg first to receive the

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[91] Charles' wife, Zina detected this tendency of extravagant patterns in Charles. This will be exploited by Brent in his book labeling Charles as a *dandy*.

A. & G. Repsold and Sons reversible pendulum delivery and afterwards went on to Berlin to visit Zina's sister Amy Fay who was studying music there. Charles conferred several times with Gen. Johann Jakob Baeyer, the founder and president of the Prussian Geodetic Institute, who questioned the stability of the Repsold support. Then he went to Geneva without the company of Zina. By arrangement with Prof. Emile Plantamour, director of the Geneva Institute, he swung his new pendulum where he detected and measured the flexure of the support that Gen. Baeyer suspected. In September, he established his base of operations in Paris, coinciding with the ten-day meeting of the Permanent Commission of the International Geodetic Association. He attended the meeting of the Special Committee on Pendulum where he reported the discoveries he made in Geneva. He participated in the discussion of its report, showing that the flexure of the pendulum stand was the source of serious error in the measurement, thus, becoming one of the few Americans of his time to directly participate in the deliberations of an international scientific association.[92] He also attracted the interest of leading European figures in the field. He continued swinging his new pendulum for extended periods in Paris, in Berlin, and in Kew.

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[92] At that time Zina left him for Cambridge with her sister giving reasons of illness and doubts on continuing the marriage. Even before they made the trip Zina was already suspecting that Charles was having an affair with another woman during her absences. (See J. BRENT, *CSPL*, p. 95 for more details.)

When he left for Europe, his *Photometric Researches*, which he started in early 1872 in Cambridge and Washington, was almost complete but he still wanted to make a more thorough study of earlier star catalogues. So he took this opportunity to examine medieval and renaissance manuscripts of Ptolemy's star catalogues in several European libraries. He also inquired on the methods used in the preparation of the most recent star catalogue, the *Durchmusterung* of Argelander and Schönfeld at the Bonn Observatory. His *Photometric Researches* which was published in 1878, included his own edition of Ptolemy's catalogue as well as a long letter from Schönfeld concerning methods of the *Durchmusterung*.[93]

Many Peircean scholars considered this trip as the most productive one since he was able to establish his and the Coast Survey's scientific reputation in the European scientific world. It was also on this sojourn that he consolidated his ideas on the "Illustration of the Logic of Science,"[94] which appeared two years later. But there is a dark side to the story of his longest stay in Europe. The Académe Francaise treated him as an American of no account and refused him laboratory facilities necessary for his pendulum research. His personal defects were also revealed that in spite of his great scientific capability, he was a loose administrator, inept in accounting

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[93] It was published by Wilhelm Englemann in Leipzig. Cf. *W* 3.382-493.

[94] Cf. C. S. PEIRCE, *W* 3.242-374.

for expenditures and grandly extravagant in purchases. He spent more than his estimated budget and lost contact with Washington because of his own failure to send his forwarding addresses. Worried about money, left alone by his wife, overworked and overindulged (spending two months acquiring a fine knowledge of Médoc wines) he became morose and suffered a serious nervous collapse causing a temporary but complete paralysis in May 1876. With his father's encouragement from the U. S. and a brief visit by Zina on the insistence of his father, he was able to recover in the middle of July and departed for Boston on August 8, 1876.

The third European trip was to attend the International Geodetic Association Conference held in Stuttgart, Germany from late September to early October, 1877 as accredited representative of the United States Coast Survey, the first formal representation of an American scientific agency in the sessions of an international scientific association and to defend his findings and Hervé Faye suggestions of 1875 which was rendered invalid in the previous meeting held in Brussels in 1876. By invitation, Charles sent in advance a memoir in French on the effect of the flexure of the Repsold stand on the oscillations of the reversible pendulum, which would be published as appendixes of the proceedings of the conference together with the papers of Plantamour and his colleague Cellérier confirming his findings. This voyage took him on September 13, 1877 from the port of New York arriving on the 24th on the port of Plymouth. During the trajectory he was able to finish the paper, "How to Make Our Ideas Clear," written entirely in French, and also translated to French, "The

Fixation of Belief," as a preparation for his speech and discussions in that language for the conference. From September 27 to October 2, Charles represented the US at the conference having the chance to address the international community in four sessions and be recognized as a world authority in this highly specialized field, a triumph in personal career at the age of thirty-eight. From there he went to Leipzig, Berlin, and Paris to have his papers published and embarked in Le Havre for the US on November 3 and arriving in New York on the 18th.[95]

The fourth time Peirce crossed the Atlantic Ocean was on Coast Survey business in April 1880 in the company of two Johns Hopkins University colleagues: the famous English mathematician James Joseph Sylvester and Basil Gildersleeve. A few months before the trip, he suffered a nervous breakdown, facial neuralgia and various other illnesses, which left him in frail health. A few weeks after arriving in England, he suffered a relapse and came down with bronchitis. Recovering in June he traveled to Paris to address the French Academy of Science on the Value of Gravity. In the Fourth of July Celebration of the Declaration of Independence of Americans in Paris, Peirce in a speech gave high praises to Johns Hopkins University as a unique American university "that recognized that the function of the university is the production of knowledge, and that teaching is only a necessary means to that end." But he also blamed the very

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[95] Cf. C. S. PEIRCE, *L* 341, 1877. Also M. FISCH, *PSP*, pp. 127-130.

little progress of science to the clerical and pedagogical bent of the American universities.[96] He was supposed to report on his pendulum work and his spectrometer at the International Geodetical Association meeting to be held in Munich in September but was suddenly recalled home due to the grave illness of his father. He sent an abbreviated report in a form of a letter to Hervé Faye and embarked home arriving in New York on August 4, 1880.

Peirce made the fifth and last European trip on May 2, 1883, this time in the company of Juliette. Arriving in Paris, he placed an order to purchase for new Defforges model pendulums from Colonel Gautier, a world-renowned precision instruments manufacturer intending to return with it to the US in September. In London he compared the Survey's standard yards with the imperial yards at the British Standards Office and visited the Royal Society library. He measured the pendulum base used in 1878 experiments at Kew Observatory in Surrey and in Geneva, he measured the flexure of the table he had used for the pendulum base in his 1875 experiments. Then in Rome, he attended the seventh International Geodetic Association meeting. Back in Paris he made a thorough study of the Epistle of Petrus Peregrinus on the lodestone at the Bibliotèque Nationale while awaiting for the Gautier pendulums. On the preliminary tests of the pendulums in the Gautier workshops, he discovered a new source of error and received permission to redesign it. Delays in the

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[96] Cf. C. S. PEIRCE, *W* 4.152-156.

manufacturing and the laboratory tests forced him to go home without it. This disappointment caused great strain in his work since he had to depend on theoretically derived correction formulas.

1.2.4. The Johns Hopkins University (1879-1884)

Maryland, predominantly Catholic, was originally populated by English, Scots, Irish, Germans and French. After the civil war though, other ethnic groups came in where the interculture mix was seen more in Baltimore, the capital. A small group of wealthy men of the city would raise the money for the university, that would bring honor to city and to them. The Johns Hopkins University which opened in 1876 in Baltimore, Maryland as an elite institution, wanted to match European scholarship standards in graduate and professional education. It was financed by a small group of wealthy men of narrow and largely Methodist and Presbyterian convictions led by the Baltimore philanthropist who gave the university its name[97]. After consultation with other leading university presidents, the Johns Hopkins University was established with emphasis in research and graduate education. Daniel Coit

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[97] Johns Hopkins was a successful Baltimore merchant and philanthropist. In his will and testament he wrote to give $7,000,000 equally divided between the Johns Hopkins University and the Johns Hopkins Hospital. For more biographical information see B. MITCHELL, "Johns Hopkins" *Dictionary of American Biography*, D. Malone (ed.), Charles Scribner's and Sons, New York 1961, vol. 5, pp. 213-214.

Gilman appointed president, was given a free-hand to recruit his faculty. While Peirce was on his third European sojourn, William James nominated him for the chair in logic and two years later, his father recommended him for the chair in Physics. Doubting that he could leave the pendulum experiments which gave him international acclaim, he declined the professorship and proposed to Gilman just to be a part-time professor of Logic (a visiting lecturer). But George Morris and William James were already given the same status that he was asking and the Trustees decided not to hire anymore due to the decline in the dividend rate of the common stock of the Baltimore-Ohio Railroad —the major financial source of the endowment income.

Peirce was officially appointed Lecturer in Logic for the academic year 1879-80 with Gilman succumbing to Peirce's condition to make him the only one in-charge of the branch with an intention on the part of Johns Hopkins University to ultimately make a full professorship for it. Among those recruited by Gilman for the academic year 1879-80 were Basil Gildersleeve (Greek), Newell Martin (Biology), Charles Morris (Latin), Ira Remsen (Chemistry), Henry Augustus Rowland (Physics) and James Joseph Sylvester (Mathematics). As visiting lecturers aside from Peirce — Granville Stanley Hall (Psychology), George Morris (Ethics and History of Philosophy), and William James (Psychology), all rivals to Peirce for the Philosophy chair. Many of the early students had already taken degrees from other universities but it was at Johns Hopkins that they sought advanced degrees. Johns Hopkins University holds the distinction as the first university in America to offer the doctorate degree and from

the beginning it attracted brilliant students. Eighty-nine students were enrolled in its opening year in 1876 and three years later, when Charles was incorporated to its faculty as lecturer in logic, the enrollment grew to 159.

This appointment marked the comeback of Peirce to the university classrooms after he obtained his first degree from Harvard. The majority of Peirce's students were from the mathematics department. Max Fisch describes it as "the most distinguished and creative teaching any university has ever had in logic, and Peirce's students were brought to a level of original achievement which has never been rivaled."[98] During his five terms at John Hopkins Peirce taught both elementary and advanced courses. A general course would carry: the foundations of logic; the deduction of the theory from physiological facts; clearness of apprehension; doctrine of limits; syllogism (a new analysis); doctrine of logical breadth, depth, and area; logical algebra, theory of errors; inductions and hypothesis. The advanced logic course was based principally on Peirce's theory of induction and an examination of the logical foundations of the leading scientific theories of the time. He also taught special courses on the logic of relatives, medieval logic, philosophical terminology and probabilities, as well as a course on the psychology of great men.

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[98] M. FISCH, *PSP*, p. 45.

At the end of the term of 1880, suffering a big blow after the death of his father, Peirce wrote Gilman of his intention to resign from Johns Hopkins due to incompatibilities with his work in the Coast Survey. He also sold part of his private library to the Peabody Library to which Gilman publicly thanked him. But Sylvester convinced Gilman to retain Peirce and Thomas Craig, another Coast Survey employee. Most probably, the encouragement of Sylvester to publish his father's *Linear Associative Algebra* prevailed on Peirce to stay. To work it out in a mathematical community with the caliber as that of Johns Hopkins (Sylvester, Story, Craig, Rowland, Franklin, Mitchell, and Ladd) would be of great advantage to him. Besides, the Trustees gave him a substantial raise so in 1881 he continued with them. In connection with his advanced logic classes, he wrote a paper on the theory of probable inference, conceived a project with his students, and made various contributions to the *American Journal of Mathematics*.

During the term of 1882-83 he only gave one course, meeting four times a week. Peirce gave the inaugural class with a public lecture in the Hopkins Hall for all the faculty members and students. He gave it superbly without notes expressing his observations that a clear understanding of the purpose of the study of logic might remove some prejudices by leading to a true estimate of its nature.[99] To the dismay of the Trustees, a conflict between Peirce and Sylvester arose

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[99] J.H.U. Circular, November 1882, as quoted in M. FISCH, p. 47.

during the course.[100] So it was a relief from the tension of this conflict for Peirce when the long-awaited book *Studies in Logic* appeared in March, 1883. It was a project he initiated with his students (Christine Ladd, Allan Marquand, John Dewey, Thorstein Veblen, Joseph Jastrow) two years ago. Peirce was so pleased with this work that he would send inscribed copies of it as gifts in his later years. It was an achievement not only for logic but also for the university education in America since it was a collective effort mostly by graduate students. It was also an embodiment of Peirce's ideal and ethic of a community of investigators after the truth. Joseph Jastrow has high praises for it: "The concluding paper which Mr. Peirce contributed to the volume on 'A Theory of Probable Inference' exhibits the qualities of his teaching and the charm and lucidity of his language, and remains an admirable example of the construction of his thought and the finish of his art."[101] Although he edited the book, credit was given to the members of Johns Hopkins University. It was conceived to be the first of a series but as mentioned earlier, Peirce's connection to Johns Hopkins University was ended the following year.

Peirce's involvement in the university life was not limited to classroom instruction. He assisted and submitted papers for

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[100] Cfs. N. HOUSER, "Introduction," *W* 4.lvi-lviii and M. FISCH, *PSP*, pp. 54-62.

[101] J. JASTROW, "Charles S. Peirce as a Teacher," *The Journal of Philosophy, Psychology and Scientific Methods* 26 (1916): 723-724.

discussion to the Mathematical Seminary and Scientific Association. Not long after his arrival to the university, Peirce founded the Metaphysical Club, probably inspired by the memory of the defunct Cambridge Metaphysical Club. Christine Ladd, one of his first students, recalls how he conceived it: "So devious and unpredictable was his course that he once, to the delight of his students, proposed at the end of his lecture that we should form, (for the greater freedom of discussion) a Metaphysical Club, though he had begun the lecture by defining metaphysics to be 'the science of unclear thinking.'"[102] Membership was open to everyone, professors and graduate students alike from different departments. The Club held its first meeting on October 28, 1879, Peirce was elected president and Allan Marquand, one of his students, secretary. Six papers were presented and discussed. The club met monthly during the academic year for six years. During the first three years Peirce presided during which logical topics predominated. The rest of the period was divided between Hall and Morris. Other professors also read papers by invitation and also papers from visitors. Peirce attended the majority of the meetings even when he was not connected anymore with the Johns Hopkins. The second to the last paper he delivered to the club on May 13, 1884 was entitled "Logic of Religion" (*MS* 868). The club died down not long after his departure.

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[102] C. LADD-FRANKLIN, "Charles S. Peirce at the Johns Hopkins," *The Journal of Philosophy, Psychology and Scientific Methods* 26 (1916): 717.

Among the fifty or so students taught by Peirce some would stand out like John Dewey, Fabian Franklin, Benjamin Ives Gilman, Joseph Jastrow, Christine Ladd,[103] Allan Marquand, Oscar Howard Mitchell and Thorstein Veblen. Most of them had high regards for Peirce for he astounded them by writing a logical problem on the blackboard with one hand and the answer with the other —simultaneously.[104] Fabian Franklin would remark, "the singular genius of Charles S. Peirce was made a source of remarkable intellectual stimulation in the University." When Sylvester asked one of his students about Peirce's lectures, the reply he got: "that they were always substantial, often very subtle, never trite, not easy to follow, frequently so lacking in clearness that the hearers were quite unable to understand, but there can be no question that Peirce was a genius."[105]

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[103] Although she already completed all the requirements, Johns Hopkins University did not grant her doctorate for fifteen years (J. BRENT, *CSPL*, p. 128). The admission of a woman for an advanced degree was remarkable during those times and it required pressure from Sylvester and Benjamin Peirce to have her admitted to the university (N. HOUSER, "Introduction," *W*, 4.xxxviii.).

[104] B. KENT, *Charles S. Peirce: Logic and the Classification of the Sciences*, McGill-Queen's University Press, Kingston 1987, p. 3. *LCS* from here on.

[105] As quoted by N. HOUSER, "Introduction," *W* 4.xxxviii.

1.3. The mature Peirce: philosopher (1890-1914)

The Peirces moved to Pennsylvania in 1887 renting a house until they could expand one on their own. With the inheritances and with Juliette's money, they began acquiring properties in Juliette's name. In 1888, they bought a 140 acre farm on the western bank of Delaware River upon which were a few buildings. They bought 1,200 acres of adjacent woodlands and by 1890, another 500 acres making a estate of almost 2,000 acres. They began immediately the designing for the reconstruction of what would be their house: a farmhouse built in 1854 by the Quicks, the previous owner of the estate. It became their residence: Peirce for twenty-six years and for Juliette another twenty years. Peirce called it «Arisbe».

1.3.1. C. S. Peirce's "Arisbe"

But what's in a name? Arisbe goes back to ancient times when "Greek thought was cradled in Ionia; and if Ionia was the cradle of Greek philosophy, Miletus was the cradle of Ionian philosophy. For it was at Miletus, that Thales, the reputedly earliest Ionian philosopher flourished"[106] and Arisbe was its colony located south of Hellespont. Peirce might have been recalling his first journey to Europe when he chose the name Arisbe. In September 1870, on a Survey assignment to find a place to observe the solar eclipse, he went to Greece

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[106] Cf. F. COPLESTON, *A History of Philosophy*, vol. 1, Image Books, New York 1985, p. 17.

and passed near Homer's Arisbe. In his junior year in Harvard he also read Felton's edition of the *Iliad* recalling some of its passages. Max Fisch presents a hypothesis of why Pierce chose the name Arisbe in his essay: "Peirce's Arisbe: The Greek Influence in his later Philosophy."[107] But there is no doubt that he chose the place to consolidate his philosophy.

Murray Murphey, who believes that Peirce was a systematic philosopher in contrast to what the editors of the *Collected Papers of Charles S. Peirce* believed, divided the development of Peirce's philosophical system into four stages, in an attempt to interpret Peirce's work chronologically and systematically through an architectonic principle. According to Murphey, Peirce adopted the method to first formulate his position as systematically and completely as possible, formulating several systems each of which represents a different phase in his development.[108] In Murphey's analysis, Peirce's views, underwent considerable changes.

The first system according to Murphey can be dated from 1857 to 1865. a derivation of the architectonic theory of Kant, which holds that the domain of knowledge can be so characterized that general assertions can be proven true of all possible knowledge. The doctrine holds that it is the dependence of all knowledge upon logic that makes such characterization possible, that it is possible to derive from

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[107] M. FISCH, *PSP*, pp. 228-248.

[108] Cf. M. MURPHEY, *DPP*, pp. 1-5.

logic the fundamental categories and principles as bases for all others to be known. From Kant's doctrine of the Transcendental Sciences, Peirce derived the threefold ontological classification of everything: matter (the object of cosmology); mind (the object of psychology); and God (the object of theology), which mutually exclude each other. Thus Peirce considered himself a realist, materialist, transcendentalist and idealist. He would correlate these categories with the "I, the It, and the Thou,"[109] reordering the categories in Kant's table. «The I» for Peirce was the abstract world, «the It», the sense world, and «the Thou», the mental world. From this classification he subsequently derived his new categories of Firstness, Secondness, and Thirdness.

Having divided everything into these three categories, Peirce encountered the problem of how to relate them to each other. One thing that seriously disturbed him was the problem of knowledge as it appeared in the first system: how ideas in the mind of God can be known by human minds. He tried to find the solution in Kant's phenomenon principle: that all phenomena and all concepts, all that can be before the mind are representations, assuming that the ideas in the mind of God, which he conceived as the archetypes of Plato's world of ideas, are first given a material embodiment in the form of objects of our experience and are then derived by us from those objects by abstraction. He discovered later that the Kantian table of categories was inadequate for his newly

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[109] Cf. C. S. PEIRCE, *W* 1.45-46.

invented categories if he wanted to retain his semiotic idealism.

So he studied logic seriously and turned to the medieval Scholastics. He studied Aristotle (*CP* 1.1), Boethius (*CP* 1.31), St. Anselm (*CP* 5.213n1), Abelard (*CP*, 1.551n1), Petrus Hispanus (*CP* 2.800n1), John of Salisbury (*CP* 5.215n1), St. Thomas Aquinas (*CP* 2.393) Ockham (*CP* 2.393) and Blessed John Duns Scotus (*CP* 1.6), where he found evidence to disprove Kant concluding that the first three figures are irreducible. [110] He also studied the Scottish school of common sense in particular Thomas Reid (*CP* 1.19)[111] and William Hamilton (*CP* 1.29).[112]

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[110] Cf. C. S. PEIRCE, "Memoranda Concerning the Aristotelian Syllogism," *W* 1.505-514 and *CP* 2.792-807. See also M. MURPHEY, *DPP*, pp. 9-63.

[111] Thomas Reid (1710-1796) was the originator of the Scottish philosophy of common sense. According to Reid, common sense is that degree of judgment which is common to people with whom we can converse and transact business. Furthermore all knowledge and all sciences must be built upon principles that are self-evident, and of such principles every human being who has common sense is a competent judge when he conceives them distinctly.

[112] Sir William Hamilton (1788-1856), Scottish philosopher, professor of history and philosophy in Edinburgh. Better known nowadays as the inventor of a variant of the logic of syllogism in which the predicate as well as the subject are quantified.

The second system (1866 to 1870) coincide with the publication of the paper, "On a New List of Categories" (*W* 2.49-59) which focused on the problem of how to relate the three ontological categories. From Kant, Peirce formulated his sign relation theory. The essence of his argument after relating it to signs is that: a) all synthesis involves the sign relation; b) the sign relation consists in the sign standing for something to someone in some respect; and so, c) unless there are things, minds and abstractions, there is no knowledge. Peirce analyzed the sign relation in three different aspects of reference instead of presenting it as ontological classes: reference to abstraction, reference to an object, and reference to an interpretant, which later on will be the basis of the systematic classification of signs according to the prominence given to each reference, applied to terms, propositions, and arguments. To arguments, Peirce presented the three forms of syllogistics as consequences of his analysis of signs.

Peirce also said that Logic, is just one of the science of signs. Speculative grammar, which studies the relation of signs to the abstraction, comes before (*W* 1.559), and speculative rhetoric, which studies the reference of signs to their interpretants, after.[113]

But how do we know that the objects referred to are real? In the three articles Peirce published in the *Journal of Speculative Philosophy*: "Questions Concerning Certain

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[113] Cf. M. MURPHEY, *DPP*, pp. 65-94.

Faculties Claimed for Man" (*W* 2.193-211); "Some Consequences of Four Incapacities" (*W* 2.211-242); and "Grounds of Validity of the Laws of Logic: Further Consequences of Four Incapacities" (*W* 2.242-273), he developed the former implications established in the "New List of Categories." Since the reference of a sign to its object is established by its being predicated of another sign which already refers to that object, and since the predication exists only because there is an interpreting sign who interprets it, therefore the series of sign is doubly infinite.

According to Guy Debrock, most commentators of Peirce have the tendency to distinguish them as categories describing different sort of entities. But there are no examples of pure Secondness, any more than there are examples of pure Firstness or Thirdness. But the only actual constituent of reality is appearance or events. And no event is actual event unless there be an element of Secondness of, Firstness and of Thirdness wherein they are not pure ones. There is no appearance unless something *happens* an 'event' which is irreversible. To Peirce this 'brute' aspect of appearance is the aspect of *Secondness* not what happens but simply its happening for every event is a dyadic relation between two elements.

But nothing happens unless it happens in a certain way. Using the event of the perception of color, perception is the concrete event. But that event consisted in seeing the color, that is the same general aspect under which innumerable other perceptions may be described. Seeing a color as a description of the event is an element of Thirdness. Thirdness is always of

the nature of thought, or of a law under which an event may be described; it is general in nature.

What about Firstness? *Firstness* is that element of appearance which does not refer to anything but itself. The closest we can come to describe Firstness is by attempting to think of a sensation before we sense it. As soon as we have sensation, there is already the distinction between that which senses and that which is sensed. But since there can be no sensation without sensum, that sensum all by itself would constitute Firstness. There can never be any *actual* Firstness; it always is a mere possible.[114]

The theory of the categories provided Peirce the basis for his theory of cognition, which in turn provided the basis for his theory of reality. He developed this new doctrine fully in the second paper and gave a description of it in his review of "Fraser's *The Work of George Berkeley*" (*W* 2.462-487). Peirce posed two problems concerning reality: real objects; and real universals. Real objects exist because our knowledge is not a sensory copy of the cause of sensation but a product od synthesis of sense experience carried out by the mind. Concepts which give coherence to sense data unify sense experience and are justified only by the unity they produce. Sensations continue to occur together as if they were the effects of one cause. The test of truth therefore, is coherence.

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[114] G. DEBROCK, "Information and Peirce's Gift to the World," typescript, pp. 6-7 (italics his.).

A true proposition is one which gives coherence to our experience. The existence of real object is therefore, hypothetically affirmed in order to explain regularities of phenomena and thereby make our experience intelligible. What Peirce attempted here was to formulate a doctrine which was phenomenalistic and at the same time realistic realizing later that his attempt to answer the first question affirmatively was an error.

On real universals, Peirce adopted the notions of «haecceitas» and the universal of Duns Scotus. His concept of precision seems to be Scotus' formal distinction, and his theory of abstraction is similar to Scotus' method of deriving universality. Murphey disagrees with Boler's claim that Peirce was a scholastic realist of the Scotish school, since the scholastic doctrine asserts that the universal in mind and the individual out of the mind have a common nature. Murphey saw in Peirce the reality of universals holds because all judgment contain general terms, and no matter how far determination is carried, the true singular is never realized. Therefore, everything is to some degree general.[115]

Murphey dates the development of Peirce's third system from 1870 to 1884 when he abandoned his previous logical doctrines upon discovering the logic of relations. In 1866,

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[115] Cf. J. BOLER, *Charles Peirce and Scholastic Realism: A Study of Peirce's Relation to John Scotus*, University of Washington Press, Seattle 1963 and M. MURPHEY, *DPP*, pp. 105-150.

when he came across Augustus de Morgan's papers "On Syllogism IV and the Logic of Relations," he at that time did not notice the implications involved in the admission of relative propositions which introduce propositions that are not reducible to the subject-predicate form, and it becomes an open question whether a set of categories derived from that form will also apply to relative propositions. The discovery would be Peirce's most important philosophical contribution for he developed this fully and not until Russell and Whitehead *Principia Mathematica* was it superseded and by a theory based in large part upon his own.

With this new discovery, Peirce overhauled all of his past philosophical system. The paper "Description of a Notation for the Logic of Relatives, etc." (*CP* 3.45-149) carried the effect of the new logic and would become evident in his succeeding philosophical papers. He would also pursue his inconsistent concept of meaning and develop it into the theory of pragmatism— his most famous philosophical doctrine brought into prominence in its altered form by William James in 1898. As Peirce defined it, pragmatism is purely a theory of meaning and not of truth. Peirce's original statement of the pragmatic maxim was:

> (...) To develop its meaning, we have, therefore, simply to determine what habits it produces, for what a thing means is simply what habits it involves. Now, the identity of a habit depends on how it might lead us to act, not merely under such circumstances as are likely to arise, but under such as might possibly occur, no matter how improbable they may be. What the habit is depends on *when* and *how* it causes us to act. As for the *when*, every stimulus to action is derived from perception; as for the *how*, every purpose of

> action is to produce some sensible result. Thus, we come down to what is tangible and conceivably practical, as the root of every real distinction of thought, no matter how subtle it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference of practice (...).[116]

By "habit," Peirce means a law or conditional relating antecedent conditions to consequent experience, and by "practical bearings" he means sensible results. Therefore, our conception of all such conditionals is our concept of the object. Later on he pronounced his first official version of the pragmatic maxim:

> (...) Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object (...).[117]

Peirce wanted to say that a conjunction of conditionals relate conditions of perception to phenomenal qualities. He asserted that the meaning is the concept of the effects. At first, Peirce intended pragmatism to be a principle of scientific definition. He wanted to stress the utilitarian aspect of science and of all knowledge— the fact that significance lies in the relation to the desired ends.

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[116] C. S. PEIRCE, *CP* 5.400, 1877.

[117] C. S. PEIRCE, *CP* 5.402, 1877.

The theory of inquiry to which pragmatism is part, has also the doubt-belief theory which says that a knowledge of the laws governing the behavior of objects has a practical utility. It enables us to predict what sensible experiences we will receive from an object as a consequence of our own actions. If we wish to obtain certain experiences, then a knowledge of those laws enable us to shape our actions so as to gain the desired end. The laws act as rules for our actions, and when adopted, they become our habits. Peirce sustained that for organisms to survive, they must develop habits of behavior that are adequate to satisfy their needs. These habits are rules of behavior that prescribe how we should act under given conditions in order to achieve a particular result. These habits, when thoroughly adopted, will be denominated by Peirce as beliefs. Belief does not make us act at once, but puts us into a condition that we shall behave in a certain way when the occasion arises. But when we are confronted with circumstances which we have no belief, or when a belief fails and the expected result does not follow upon our actions we are cast into a state of doubt. Doubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into the state of belief. Doubt is an unpleasant state, since one is uncertain how to act and therefore, unable to attain the desired goal. Doubt is the outcome of the failure of a belief to line up to its expected outcome. Doubt becomes the privation of habit, the exposure to erratic behavior. The normal

tendency therefore, is to escape from doubt and to find belief. This struggle, the passing from doubt to belief, is called by Peirce as inquiry.[118] In his essay, "The Fixation of Belief" (*CP* 5.358-377), the settlement of opinion is the sole object of inquiry which has a social function that is essentially the matter of establishing belief systems and norms which can become guides and eventually establish ends or goals as regulating principles of moral and social conduct. The process of inquiry in the form of community of investigators, in which individuals fix beliefs and establish habits of conduct, is closely related to the fixation of belief. The fixation of belief is precisely the establishment of habit. Community then is the means through which one can engage in the process of inquiry in the hope of settling the opinions and validating the systems.[119]

Max Fisch, in his paper "Alexander Bain and the Genealogy of Pragmatism," traced this Peircean theory of inquiry to English psychologist Alexander Bain, who states that belief is essentially related to action, that is volition. Readiness to act upon what we affirm is admitted upon all hands to be the sole, the genuine, the unmistakable criterion of belief. Both Peirce and Bain focus their inquiry on the production of agreement aiming for long-lasting belief. Peirce

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[118] Cf. M. MURPHEY, *DPP*, pp. 151-179,

[119] Cf. LISZKA, J., "Community in C. S. Peirce: Science as a Means and as an End," *TCSPS* 14 (1978): 305-321.

clearly stated that true cognition is one which will always be affirmed. Bain similarly stated that true belief is one which will never be disappointed by experience.[120]

Max Fisch calls Peirce's third philosophical activity as the cosmopolitan period when Peirce traveled extensively to many cities in Europe as well as in the US and when he seriously took the Greeks. Fisch divides Peirce philosophical activity into three periods namely: the Cambridge period (1851 to 1870); the Cosmopolitan period (1870 to 1887); and the Arisbe period (1887 to 1914). He supports the hypothesis that it was in the cosmopolitan period, in which Peirce traveled extensively to many cities in Europe as well as in the US, that he took seriously the Greeks and that it was in the Arisbe period in which he revised and tried to complete his philosophy with the help of the Greek philosophers.

Max Fisch traces Peirce's serious studies of the Greek philosophers during his Johns Hopkins years. He worked with Allan Marquand on the logic of the Epicureans and Philodemus concluding that Philodemus' treatise contained a well-developed theory of induction. Furthermore, Peirce evolutionary cosmology contains traces of Epicurus Aristotle and Impedocles.[121] No doubt looking at the definitions Peirce made in the *Century Dictionary*, it may be concluded that he was well-versed in the ancient philosophy.

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[120] Cf. M. FISCH, *PSP*, pp. 79-109.

[121] M. FISCH, *PSP*, pp. 227-248.

1.3.2. The Last Articles and Last Lectures

By the end of 1891, Peirce was already unemployed, but with his inheritance, started to work on his farmhouse with Juliette. Being without income never changed his lifestyle, spending lavishly and living high. The two two even transitted frequently to New York as they had an apartment going to the expensive Brevoort House and Century Club. He started writing to earn and also to express his philosophy coming out with articles for periodicals like the *Open Court*, the *Independent*, the *American Historical Review*, and various newspapers. His contributions to the *Nation*, for which he had been writing occasionally since 1869, grew in frequency.

Way back in 1888, Peirce wrote, "A Guess to a Riddle"[122] as a posthumous tribute to his father, but it was not published. Although unpublished, its essential ideas appeared as a series of popular articles thanks to Chicago judge Francis C. Russell, who discovered Peirce through his personal interest in Logic. By 1890, Peirce received a letter from Russell's friend, Paul Carus, the editor of the Open Court Publishing Company of Chicago, requesting him contributions for *The Monist*, a new journal, about to begin its publication. Peirce in need of money and medium to express his ideas, accepted the offer,

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[122] C. S. PEIRCE, *The Essential Peirce: Selected Philosophical Writings*, vol. 1, N. Houser,-C. Kloesel, (eds.), Indiana University Press, Bloomington 1992, pp. 245-279. The editors of this book say that this unpublished essay is perhaps Peirce's greatest and most original contribution to speculative philosophy.

and thus began the long relationship between the two men put to end only by Peirce's demise in 1914. In January 1891 coinciding with the first issue, he published his first-of-a-five-series essay entitled, "The Architecture of Theories."[123] In this essay he followed Kant's proposal that systems must be constructed architectonically in contrary to the piecemeal approach common among English philosophers. He restated his father's evolutionary cosmology and presented the new form of his universal building blocks, the logical categories of Firstness, Secondness and Thirdness, which

> (...) are conceptions so very broad and consequently indefinite that they are hard to seize and may be easily overlooked (...) First is the conceptions of being or existing independent of anything else. Second is the conception of being relative to, the conception of reaction with, something else. Third is the conception of mediation, whereby a first and a second are brought into relation. To illustrate these ideas, I will show how they enter into those we have been considering. The origin of things, considered not as leading to anything, but in itself, contains the idea of First, the end of the things that of Second, the process mediating between them that of Third. A Philosophy which emphasizes the idea of the One is generally a dualistic philosophy in which the conception of the Second received exaggerated attention; for this One (though of course involving the idea of the First) is always the other of the manifold which is not one. The idea of the many, because variety is arbitrariness and arbitrariness is repudiation of any Secondness,

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[123] C. S. PEIRCE, *CP* 6.7-34, 1891.

> has for its principal component the conception of First. In psychology Feeling is First, sense of reaction Second, general conception Third, or mediation. In biology, the idea of arbitrary sporting is First, heredity is Second, the process whereby the accidental characters become fixed is Third. Chance is First, Law is Second, the tendency to take habits is Third. Mind is First, Matter is Second, Evolution is Third.[124]

His second essay, "The Doctrine of Necessity Examined,"[125] appeared the following year where he examined "the common belief that every single fact in the universe is determined by law" (*CP* 6.36). objecting to a mechanical, completely determined universe tracing the problem to Democritus, and argued that the necessitarian position could not account for such features of the universe as complexity, consciousness diversity, growth, irregularity, and novelty. He solved this problem by invoking absolute chance and spontaneity.

"The Law of Mind,"[126] the third essay of the series, is where Peirce gives absolute chance the name «tychism» and introduced his principle of continuity, christening it as «synechism», the law of mind. Peirce came to this idea of continuity from mathematical infinity but the metaphysical

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[124] C. S. PEIRCE, *CP* 6.32, 1891.

[125] C. S. PEIRCE, *CP* 6.35-65, 1892.

[126] C. S. PEIRCE, *CP* 6.102-163, 1892.

generalization of the continuity principle to the human mind and the universe was due to the inadequate explanation of the mechanicists.

> Logical analysis applied to mental phenomena shows that there is but one law of mind, namely that ideas tend to spread continuously and to affect certain others which stand to them in peculiar relation of affectability. In this spreading they lose intensity, and especially the power of affecting others, but gain generality and become welded with other ideas.[127]

Concluding, Peirce says that synechism explains many inexplicable facts and that it is based on three doctrines: a) a logical realism of the most pronounced type; b) objective idealism; and c) tychism with its consequent thoroughgoing evolutionism.[128]

"Man's Glassy Essence"[129] was the fourth essay published October 1892 where he applied the previous doctrines

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[127] C. S. PEIRCE, *CP* 6.104, 1892.

[128] Cf. B. ILARREGUI-J. NUBIOLA, "The Continuity of Continuity: A Theme in Leibniz, Peirce and Quine," *VI Internationaler Leibniz-Kongress*, Schröder, G. (ed.), Vorträge, I. Teil, Hannover 1994 pp. 364-371. The third part, "Continuity in Peirce," is from Prof. Jaime Nubiola's on-going study on Peircean communication theory. See also V. POTTER-P. SHIELDS, "Peirce's Definition of Continuity," *TCSPS*, 13 (1977): 20-34.

[129] C. S. PEIRCE, *CP* 6.238-271.

presented to biology showing the relation between the psychical and physical aspects of a substance.

> (...) It may be well to reflect that if matter has no existence except as a specialization of mind, it follows that whatever affects matter according to regular law is itself matter. But all mind is directly or indirectly connected with all matter, and acts more or less regular way; so that more or less partakes of the nature of matter. Hence it would be a mistake to conceive of the psychical and physical aspects of matter as two aspects absolutely distinct. Viewing a thing from the outside, considering its relations of actions and reaction with other things, it appears as matter. Viewing it from the inside, looking at its immediate character as feeling, it appears as consciousness. These two views are combined when we remember that that mechanical laws are nothing but acquired habits, like all the regularities of mind, including the tendency to take generalization, and generalization is nothing but the spreading of feelings. (...).[130]

What Peirce is trying to say is that the suprasensible is mysteriously represented in the sensible.

The last essay of the series, "Evolutionary Love"[131] published in January 1893 was an expression of his Christian beliefs and evolutionary cosmology examining and

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[130] C. S. PEIRCE, *CP* 6.268-270, 1892.

[131] C. S. PEIRCE, *CP* 6.287-317, 1893.

condemning the nineteenth century for its social Darwinism, inhumane social values, and massive greed:

> "The Gospel of Christ says that progress comes from every individual, merging his individuality in sympathy with his neighbors. On the other side the conviction of the nineteenth century is that progress takes place by virtue of every individual's striving for himself with all his might and trampling his neighbor under his foot whenever he gets a chance to do. This may accurately be called, the Gospel of Greed."[132]

These essays were mostly misunderstood in his time, considered as eccentric musings of a mind in decline. They did not bring the audience Peirce hoped for, nor did they repair his badly damaged reputation. At that moment, he felt the shortage of his Coast Survey income, so he wrote his former colleague at Johns Hopkins, G. Stanley Hall, now President of the newly opened Clark University, if he could give a lecture series there. He also wrote Simon Newcomb to help him secure a grant to finance his investigations and to back him up for a post in Stanford University. He continued to send feelers also for academic employment also wroting his cousin Henry Cabot Lodge for the post of librarian in the Boston Public Library and even offering his services as a researcher at a modest price. His friend, William James, recommended him for an academic employment at the newly founded University of Chicago, but its president William Rainey Harper instead

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[132] C. S. PEIRCE, *CP* 6.294, 1893.

hired Thorstein Veblen, Peirce's former student at the Johns Hopkins[133]

With very few academic options, he applied his practical knowledge trying to invent and patent an electric chemical bleaching process. Sadly, he got swindled and lost his capital.[134] His other projects likewise brought him bad luck due to greedy associates.

Meanwhile, George Ferdinand Becker, an old friend from Harvard and the Geological Survey, recommended Peirce to give the Lowell Institute lectures on the History of Science. He delivered the series of twelve lectures in Boston from November 28, 1892 to January 5, 1893. The following month, after the appearance in *The Monist* of his last essay "Evolutionary Love," Peirce was invited to Chicago by Edward Hegeler, the founder of the Open Court Publishing Company and owner of *The Monist* who was very impressed by Peirce's metaphysics finding it useful for his purpose: to promote Buchnerite monotheism in the United States. On the other hand, Peirce saw in Hegeler a powerful patron and protector, but he met resistance from *The Monist* editor and Hegeler son-in-law, Paul Carus, who ambitioned to succeed the former. Peirce proposed many projects, some of them very ambitious, but only a few were realized.

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[133] Cf. N. HOUSER, "Introduction," *W* 4.lxv.

[134] Cf. J. BRENT, *CSPL*, p. 248.

The economic depression of 1893-1896 affected the Peirces much so they tried selling their Arisbe but to no avail. His brother James Mills, now dean of the faculty at Harvard University also tried to give him a hand in a number of ways. He wrote to Gilman of Johns Hopkins University, to employ Peirce as lecturer but was refused. James Mills also asked Ginn and Company, the editors of their father's geometry text, to publish Peirce's arithmetic and the reworking of Benjamin Peirce's geometry textbook, but neither text was published.[135] Peirce was left only with the income he got from of book reviews he made for the *Nation*, meager but stable. This lasted until 1905 when Wendell Phillips Garrison, the literary editor, resigned for bad health leaving Peirce without any income whatsoever. Garrison, next to James, was the among persons who consistently went out of his way to help Peirce.

Peirce wrote various publications like the *Scribner's Magazine* and the *Independent*. In fact in the January, 1894 issue of *Publisher's Weekly* he advertised his prospective "Petrus Peregrinus" and what he considered to be his magnum opus, "The Principles of Philosophy" where he outlined the twelve volumes. The tenth volume, "The Regeneration of the Church," was supposed to be his reaction to a book written earlier by a Roman Catholic priest about the doctrine of papal

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[135] Cf. C. EISELE, *Studies in the Scientific and Mathematical Philosophy of Charles S. Peirce*, Mouton Publishers, Hague 1979, pp. 308-350.

infallibility directed to non-Catholic audience. He expressed his inadherence to this doctrine before, when he was in Rome after the approval of the dogmatic constitution *Pastor aeternus* by the Vatican Council I. For Peirce, mistakes are necessary and inescapable part of the search for truth— this was his doctrine of contrite fallibilism. He went on to say that he would join the Church of Rome if he could, but logic of science forbade it because no conceivable argument could support metaphysical infallibility.[136]

Arisbe renovations sank them further in debt up to the point that they could not even pay for their household help. The closest friend they had were the Pinchots, a rich family of French origins with whom they would spend evenings of parties and dinners. James Pinchot introduced Peirce to George Plimpton, a New York publisher and collector of antique manuscripts. Plimpton was impressed by Peirce's bibliographical knowledge and employed him for a time as a consulting librarian and adviser concerning his extensive collection of mathematical works. Peirce proposed to Plimpton a scheme to substitute *Roget's Thesaurus* with *Peirce's Logotheca* based upon the pragmatic and semiotic principle that all conceptions can be infinitely extended. But this professional relation was not bound to last. Although Plimpton was fascinated by Peirce's ideas, he knew it beforehand that the project was too ambitious and would not be feasible.

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[136] Cf. C. S. PEIRCE, *L* 397, 1895.

Another helpful soul was Samuel Langley,[137] who was appointed secretary of the Smithsonian Institution who sent him as many European Scientific publications for translation and paying him at a higher rate than normal. Peirce also worked for George Morison, the distinguished civil engineer who was working on the design of the bridge to span the Hudson river from New York City to New Jersey, in the mathematical analysis of stress and other factors for a suspension bridge.[138]

In the middle of 1895, Juliette's illness required hospitalization so they moved to New York City. A good reason also to escape court summons from cases filed against him for debts and violence due to his volatile character by former servants and workmen in Arisbe. Again in touch with his wealthy friends in New York, Peirce speculated many vast and vague plans to get rich like producing cheap lighting by inventing and patenting acetylene gas generators in contrast to Thomas Alba Edison's shoestring electric lighting solution. Due to his chemical expertise, Peirce and his associates were granted the European rights for the sale of acetylene lamps.

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[137] Samuel P. Langley (1834-1906) was a pioneer in research covering solar radiation and human flight in heavier-than-air machines. He was appointed third secretary of the Smithsonian Institution. Among his merits for the institution was the expansion of the library and the international exchanges.

[138] The bridge referred here is the George Washington Bridge only built in 1945.

This venture branched out further when Peirce discovered an efficient way to extract acetylene gas from ore. In a Survey for carbide mine deposit North of the New York State, Peirce discovered that it was an excellent location for a hydroelectric generating plant. Although he gave the intellectual investment, his poverty prevented him from purchasing stocks of the company. His income as consulting chemical engineer of the St. Lawrence Power Company was not enough to feed and shelter him and Juliette who needed a health care and for his indulgence in an extravagant lifestyle.

In 1897, Juliette's health improved after undergoing surgery so they moved back to Milford settling all cases against them through the help of Morison and Plimpton. He embarked on making Arisbe habitable again, and made arrangement for tenancy and lease the land for pasturage. The following year, Peirce gave an eight lecture series entitled "Reasoning and the Logic of Things"[139] from February 10 to March 7, 1898, arranged by his friend William James in Cambridge. (A few months before, James dedicated his book, *A Will to Believe* to Peirce.) Still a *persona non grata* in Harvard, he had to deliver his lectures in the house of Sara Bull, who opened her house for university events. With the outbreak of the Spanish-American War, Peirce told his cousin Senator Lodge that he could invent a cipher machine that

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[139] Published now in one volume as C. S. PEIRCE, *Reasoning and the Logic of Things: The Cambridge Conferences Lectures of 1898*," K. KETNER, (ed.), Harvard University Press, Cambridge 1992.

could dispatch a message as secure as a combination lock and another machine that would translate it as fast as a stock-ticker.[140] Arthur Burks, one of the editors of the *Collected Papers of Charles S. Peirce*, who worked on the design and building of the electronic computer (the ENIAC computer) to compute artillery shell trajectories and convert the results into firing tables during the second World War at the Moore School of Electrical Engineering, University of Pennsylvania, discovered years later that Peirce was also interested in computing machines. Peirce was well versed with Babbage's analytical machine and Scheutzs's difference engine, something they did not know at the Moore school. Peirce found that logical switching could be done with electromechanical relays, and suggested that Babbage machine be built with relays.[141] By 1899, the Office of Weights and Measures announced a forthcoming examination for the post of inspector of standards. Peirce applied but even his qualifications and back up was to no avail and so he landed as a door-to-door salesman of the multivolume *Cyclopaedia of Practical Information* from Plimpton. A job too tiresome for a man of sixty and in poor health due to malnutrition.

At the turn of the century, Peirce got back into writing having his articles published in journals like the *American*

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[140] Cf. C. S. PEIRCE, *L* 254.

[141] Cf. A. BURKS-E. MOORE, "Three Notes on the Editing of the Works of Charles S. Peirce," *TCSPS* 28 (1992): 83-106.

Journal of Psychology, *Science*, and *Popular Science Monthly*. He also translated Henri Poincaré's paper, "Relations entre la Physique Experimentale et la Physique Mathématique" for the Smithsonian Institution. He wrote a supplement for the New York *Evening Post* on the great men of history of the nineteenth century appearing in the as part four of *Post*'s "Review of the Nineteenth Century." It was reprinted as, "The Century's Great Men of Science," and was included by Langley in the 1900 *Annual Report of the President of the Smithsonian Institution*. The June 1900 issue of the *Cosmopolitan* carried Peirce's article, "Our Senses as Reasoning Machines,"[142] an insight of the human sensory system as a reasoning machine explaining how our senses reason and comparing them to logical machines. In October, he was offered to write definitions in logic for the *Dictionary of Philosophy and Psychology*, by newly appointed chief editor psychologist James Baldwin. Peirce accepted the offer but soon realized that the work was beyond his capacities; for at his age and from the ailments and starvation he was suffering, he neither had the mental stamina nor the scholarly resources to undertake it. So he engaged his friend and former student, Christine Ladd-Franklin, to collaborate with him. At that time, Juliette suffered a severe recurrence of tuberculosis so he sent her to New York for treatment.

In early 1902 Peirce applied for a grant to the newly organized Carnegie Institution. He considered that a grant

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[142] C. S. PEIRCE, *MS* 1101, 1900.

from the Carnegie funds would free him from all financial burdens and would give him the uninterrupted time he needed to devote exclusively to write and publish his life's work in philosophy. The reputation of his past though was such that even the backing of then US President Theodore Roosevelt (through the influence of his cousin Senator Lodge) did not help him. On The Carnegie Board were Gilman, the former president of Johns Hopkins University who hired and fired him and his long-time enemy Simon Newcomb. Although they considered Peirce a genius, they had direct knowledge of Peirce's unreliability, procrastinations and doubted his emotional stability and sustained energy to continue and complete his work. He was denied the grant.

By 1903, William James arranged for Peirce to give another series of lectures in Cambridge. This time James persuaded the Harvard Corporation for Peirce to deliver his lectures in the campus but he had to raise for the fee. Announced as a six-lecture series in the *Harvard Bulletin* and *Harvard Crimson*, "Pragmatism as Principle and Method of Right Thinking." He delivered the lectures in Sever Hall from March 26 to May 17, the first in Harvard since 1870. A seventh lecture entitled, "Multitude and Continuity," was delivered under the auspices of the Department of Mathematics.[143] The Peirces stayed for a couple more weeks in Cambridge visiting old friends and relatives. Peirce intended to publish the manuscripts of the lectures but was persuaded

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[143] Cf. M. FISCH, *PSP*, p. 294.

by William James not to do so since, in James' opinion, they were obscure and unintelligible.

Peirce spent the whole summer of 1903 preparing the third Lowell Institute lectures arranged for him by Lowell Institute curator, W. T. Sedwick. He gave an eight-lecture series entitled "Some Topics of Logic bearing on Questions Now Vexed" from November 23 to December 17. Among the topics were Peirce's three universal categories, the existential graphs introduced as a system of diagrams for studying logical relations. He also prepared a syllabus with descriptions of his classification of the sciences. He stayed in Cambridge for sometime after the lectures conferring his ideas to James and Royce who understood him perfectly.

1.3.3. The C. S. Peirce-Lady Welby correspondence

Unknown to Peirce, Victoria Lady Welby[144] was attracted with his work after reading his articles on Logic in Baldwin's

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[144] Victoria Lady Welby (1837-1912) was the daughter of Hon. Charles and Lady Emmeline Stuart-Wortley, a noble English family. She was christened after one of her godmothers, Princess Victoria, who was proclaimed Queen of England shortly after her baptism. At the age of 24, Victoria was appointed Maid of Honor to Queen Victoria, and spent almost two years in court in company of great men of the Royal Court of England. She was a well-traveled young lady because her mother had a passion for travel and usually took her daughter with her. In 1863, Victoria married Sir William Welby-Gregory of Denton, Grantham. Devoting her life to family and husband, she was sympathetic to various

Dictionary of Philosophy and Psychology seeing some similarities between her works in semantics and Peirce's work in Logic. So she sent a copy of her book, *What is Meaning*, to Peirce who reviewed it along with Bertrand Russell's *The Principles of Mathematics* for the October 15, 1903 issue of the *Nation*,[145] adversely comparing in her favor. The simplicity and charm of Lady Welby's book appealed better to Peirce that he dedicated five paragraphs to it in comparison to one paragraph he dedicated to Russell's. To Lady Welby, it was somewhat extravagant to be compared to someone like Bertrand Russell. She wrote Peirce her gratitude which began the correspondence. The correspondence would last until

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evangelical movements in her time. She would write a book later about it which was not received with enthusiasm due to her unorthodox views. Besides, a book on religious instruction written by a woman was not well accepted during those times. This deception helped her define the fundamental problem of meaning. She realized that religious expression was limited by the use of outmoded forms of language. Religious belief to Lady Welby was a living, vital aspect of human experience and must be cast in contemporary forms of expression. She pointed out that forms of expression change with man's changing experience. Just like Peirce, whose interest in religion was always present, Lady Welby centered her studies on problems of language and meaning without setting aside religion completely. She also affirmed that there is no conflict between science and religion, that science and religion can go hand in hand, and that scientific discoveries give clues to new forms of expression that would transform religious beliefs into something more meaningful. (C. HARDWICK, "Introduction," *Semiotic and Significs: The Correspondence between Charles S. Peirce and Victoria Lady Welby*, Indiana University Press, Bloomington 1977, p. xv-xxxiv.)

[145] C. S. PEIRCE, *CP* 8.171-175.

1911,[146] a year before her death. These letters, aside from the containing his theory of signs, were also quite personal revealing another side of Peirce character: his affection and dependence to his wife, Juliette, who meant everything to him. He also revealed his strains and financial problems to the good lady but without any tone of bitterness or resentment. She in turn offered them her house even as permanent guests. When he told her of being cut off from the scientific community of inquirers he conceived, she offered him her extensively library for his use.

In 1904, Peirce reviewed Simon Newcombs autobiography, *The Reminiscences of an Astronomer* and congratulated the latter for his election as a foreign associate to the French Academy of Sciences in the March issue of the *Nation*. He also wrote a history of the French Academy of Sciences which appeared in the *Post*. By the middle of the year, the Peirces were short of money again and had to sell some pieces of furniture, apples, nuts and hay. He also expected to be appointed as consul to Ceylon through his brother Herbert's arrangement but it did not materialize. The following year, from April to October, *The Monist* published

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[146] The first edition was edited by I. LIEB, *Charles S. Peirce's Letters to Lady Welby*, Whitlock's Inc., New Haven 1953 and the other was edited by C. HARDWICK already mentioned above. This latter edition now includes Lady Welby's letter to Peirce. Some selected letters also were reprinted in P. WIENER (ed.), *Charles S. Peirce: Selected Writings (Values in a Universe of Chance)*, Dover Publications Inc., New York, 1966.

Peirce's articles about his theory of pragmatism which he now called «Pragmaticism» to differentiate it from the others. It was supposed to be a five-article series but he was only able to write three: "What Pragmatism Is," "The Issues of Pragmaticism," and "Prolegomena to an Apology for Pragmatism."[147] These articles were aimed show the history of pragmatism and the ideas of other authors like James, Schiller and Papini distinguishing his version from their theories especially in logical realism:

> That which any true proposition asserts is real, in the sense of being as it is regardless of what you or I may think about it. Let this proposition be a general conditional proposition as to the future, and it a real general such as is calculated really to influence human conduct; and such the pragmaticist holds to be rational purport of every concept.
>
> Accordingly, the pragmaticist does not make the *summum bonum* to consist in action, but makes it to consist in that process of evolution whereby the existent comes more and more to embody those generals which were just now said to be *destined*, which is what we strive to express in calling them *reasonable*. In its higher stages, evolution takes place more and more largely through self-control, and this gives the pragmaticist a sort of justification for making rational purport to be general.

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[147] C. S. PEIRCE, *CP* 5.411-496, 1905-1907.

> Pragmaticism was originally announced in the form of a maxim, as follows: Consider what effects that might *conceivably* have practical bearings you *conceive* the objects of your *conception* to have. Then, your *conception* of those effect is the whole of your *conception* of the object.[148]

Aside from these articles he also wrote some additional entries for the 1906 supplement of the *Century Dictionary* for which he proposed the term "critical common-sensism." By then he was formulating what he would call "theism:" his empirical justification of religion. When Garrison resigned as editor of the *Nation* in 1906, Peirce was left almost penniless so he started selling his books in despair. It was the Pinchots together with William James who help the Peirces during this time. In November the Peirces went to Cambridge for Peirce to attend the National Academy of Science meeting New York *Post* reporter. In December Juliette returned alone to Milford while Peirce remained to write his report. He ran out of money and spent Christmas alone. After the holidays, Peirce was found by Henry Alsberg, James' student very ill from undernourishment and lack of care.[149] Peirce could not support himself anymore. This moved William James to create a fund to support Peirce. Peirce stayed some more time in Cambridge tutoring a friends and gave two lectures to the Philosophy Club on "Logical Methodeutic."

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[148] C. S. PEIRCE, *CP* 5.432, 433, 438. Italics his.

[149] Cf. J. BRENT, *CSPL*, p. 305.

By July 1907 Peirce went back to Milford to be reunited with Juliette. Then he wrote his will and testament that if Juliette predeceased him, he would give all his belongings to the oldest son of William James.

1.3.4. The "Neglected Argument of the Reality of God"

Mathematician C. J. Keyser, associate editor of the *Hibbert Journal* requested Peirce to write something for the journal. In response, Peirce published "A Neglected Argument of the Reality of God" (*CP* 6.452-493) in the September 1908 issue. This was the topic Peirce had been considering at least since 1905. As pointed out much earlier, Peirce's interest in God and religion was not new. Peirce saw religion as a practical matter and science as a theoretical one. To Peirce, belief in God is instinctive. The formulation of the hypothesis comes naturally and spontaneously in an activity called, «musement».

"Neglected Argument" is also an illustration of Peirce's distinction between theoretical inquiry and practical belief. Although musement is a highly contemplative activity, Peirce recommended that it requires disinterest and detachment. The absence of all serious purpose (*CP* 6.458) save an earnest love of truth (*CP* 6.457) links musement to scientific spirit, which likewise is the study of useless things, and requires above all the love of truth. Peirce gave the warning against entering musement with a concealed purpose such as proving the truth of religion. He further characterized musement as a "Pure Play" and urged to search "in scientific singleness of heart" which shows the absence of determination of belief in the process of musement. The play of musement might involve

esthetic contemplation, or that of distant castle-building (whether in Spain or within one's own moral training), or consideration of some wonder in one of the Universes, or some connection between the two of the three, with speculation concerning its cause (*CP* 6.458). What course musement takes, however, should not be decided in advance but rather be spontaneous. Peirce was convinced that sooner or later, the "Pure Play of Musement" will give rise to "the idea of God's Reality" (*CP* 6.465).

Peirce also devoted large part of the "Neglected Argument" analyzing the three stages of inquiry: abduction or retroduction; deduction of consequences; and induction or testing of consequences. His repeated use of the term, hypothesis, indicates that musement most probably corresponds to the first stage of scientific inquiry. This is shown by his thinking that science requires the imaginative play of ideas. Peirce said that every advance in science is first suggested by "the spontaneous conjectures of instinctive reason" (*CP* 6.475).

To Peirce, belief in God is instinctive. Instinct has two-fold function in Peirce's thought. In the first place, being basically sound, it offers a reliable guide in practical situations. But in the second place, being fallible, instinct provides only a provisional starting point of inquiry. In as much as musement corresponds to the spontaneous, instinctive, playful, originative stage of inquiry, it has this two-fold function. Musement by itself is a process of allowing one's instinctive belief to assert itself, resulting in a living, practical belief. But people with background and inclinations like him will see the hypothesis of God,

> "irresistible though it be to first intention, yet needs Probation (...) This brings him for testing the hypothesis, to taking his stand upon Pragmaticism, which implies faith in common sense and in instinct, though only as they issue the cupel-furnace of measured criticism. In short, he will say that the N. A. is the first stage of scientific inquiry, resulting in a hypothesis of the very highest Plausibility, whose ultimate test must lie in its value in the self control growth of man's conduct of life."[150]

Peirce indicated the two-fold function of musement when he referred to it as the

> "first stage of scientific inquiry into the origin of the three Universes, but an inquiry which produces, not merely scientific belief, which is always provisional, but also a living, practical belief, logically justified in crossing the Rubicon with all the freightage of eternity."[151]

The following year— to acknowledge his principal and most steadfast supporter, William James, he honored him in a singular way by adding "Santiago" to his Christian names. From then on he called himself Charles Santiago Sanders Peirce. He also never gave up hope to pay his old debts to James by improving Arisbe and putting it up for rent. William James died in August 1910 leaving the Peirce fund to go on even without him. His overseas correspondent, Lady Welby

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[150] C. S. PEIRCE, *CP* 6.480.

[151] C. S. PEIRCE, *CP* 6.485.

also died in 1912. Peirce fell into depression attributed to his various body ills and perhaps intensified by cancer. The Pinchots were the only friends left for the Peirces who did as much as they could to make life bearable for the Peirces bringing them food and wood. Peirce died on April 19, 1914. Soon afterwards Juliette and Josiah Royce arranged the sale of his manuscripts and books to the Department of Philosophy of the Harvard University for a few hundred dollars.

Victor Lenzen then a graduate student at Harvard, was asked by Prof. Royce to fetch the bulk from Milford. When Lenzen returned to visit Milford in 1961, he met Edna (Gassmann) Quick, the daughter of Mr. and Mrs. Charles Gassmann, the nearest neighbor of the Peirces. Lenzen learned from her that as a little girl, she worked for the Peirces and studied photography afterwards. The photos of the Peirces in 1908 or 1909 were taken by her. Edna related to Lenzen also that her brother Charles Gassman Jr. and her mother were in the Peirce home when Peirce died in 1914:

> "During the middle of April 1914, Charles Gassmann, Jr., aged 22, had not seen the Peirces about their house for some time. He went to their door, knocked, and was admitted by Juliette. Young Gassmann saw Peirce, whom he called professor, with his white beard, lying on a small cot in a dark room with only a little fire in the fireplace. The room was cold, and Juliette said they had no wood. The Professor was glad to see the young neighbor and called him Charlie. Young Gassmann then went out and cut some wood which he brought in and placed it on the fire. This made Juliette very happy. He saw that there was no food in the house and brought some from home. He said that he would be back the following day.

> At about ten o'clock the next morning, Charles Gassmann, Jr., went to the Peirce home again. Juliette said "Papa isn't good today" (Juliette called Peirce Papa since she was younger than he, while he spoke of her as my little girl). Peirce was very thin, shriveled up, weak and ill; lying upon the cot he looked just like a little boy. Peirce said that he was cold. Young Gassmann then put wood on the fire. To warm him better the young man lifted the professor from the cot and held him in his arms. The professor gasped two or three times, then stiffened out, and died. Juliette wept, and Mrs. Gassmann came over to comfort her and bring them some food, Thus, on the morning of April 19, 1914, while resting in the arms of Charles Gassmann Jr., the last breath passed from the mortal body of Charles Sanders Peirce."[152]

Juliette survived him for another twenty years helping raise money in community affairs. She continued to build on Arisbe according to Peirce's plan but never finished it. She died October 4, 1934, leaving everything to Gifford Pinchot, who with his wife had been helpful to her over the years since Peirce's death.

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[152] LENZEN, V., "Reminiscences of a Mission to Milford, Pennsylvania," *TCSPS* 1(1965): 3-11.

2. THE SCIENTIFIC PURSUIT AND PRAGMATICISM OF C. S. PEIRCE

Gleaming from the presentation of the previous chapter, it might seem to show that Charles S. Peirce in all his life, was strictly not a philosopher but a scientist and a mathematician. It was he who said that he himself was born in a scientific community, raised by a scientist-father, and grew up in a practically science oriented environment. Long before his professional scientific training, his personal drive, his genius for mathematics and science, and his appetite for questions of logic and methodology had already been outstandingly noted. He had his graduate degree in Chemistry and throughout his life he often referred to himself simply as a chemist. In his later years, remembering his intense intellectual upbringing, Peirce said that he was "brought up in an atmosphere of exact

science."[1] Peirce was implicated in the late nineteenth-century pursuit to 'scientize' philosophy, nonetheless, he was reluctant to univocally scientistic and positivistic approaches to the pursuit.[2] In spite of his identification with science, he is in complete disagreement with lexicographers in their definition of science.

2.1. What is Science?

Science, simply put, is knowledge. It is defined as *"cognitio certa per causas,"* that is, certain knowledge by causes. Objectively, science is a set of propositions logically structured. In short, it is a system. Subjectively, science is a capacity, a disposition or a habit of our intellect.[3]

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[1] Quoted from M. FISCH, "Was there a Metaphysical Club in Cambridge?" *Studies in the Philosophy of Charles Sanders Peirce*, Second Series, E. Moore-R. Robin (eds.), University of Massachusetts Press, Amherst 1964, pp. 3-32.

[2] Cf. D. ANDERSON, *Strands of System: The Philosophy of Charles Peirce*, Purdue University Press, West Lafayette 1995, p. vii. *SSPCP* from here on.

[3] Cf. J. COLBERT, "Ciencia," *Gran Enciclopedia Rialp*, Rialp, Madrid 1987, pp. 597-601.

2.1.1. Classical definitions of Science[4]

The nature of science is itself a problem within philosophy, and there are many positions to be considered. At times science has been regarded as part of philosophy; at other times as separate from philosophy. In the ancient times it was philosophy that was concern for the love and quest for truth. Today it is science that is incessantly engaged in struggles to learn the truth, leaving treatises with rounded systematization to philosophers. From history we learned that the ultimate aim of science is to educe the truth by close observation. In this very simple level, science is the knowledge of the world of nature. There are many regularities in nature that mankind, for him to survive, has had to recognize by close observation for survival. This definition of science as the knowledge of natural processes is universal and it has existed since the dawn of human existence. However, the mere recognition of regularities does not exhaust the full meaning of science. Regularities may be simply constructs of human mind. Humans leap to conclusions and since the mind cannot tolerate chaos, it constructs regularities even when none objectively exists. True regularity must be established by detached examination of data. It was for that reason why Plato treated knowledge (*episteme*) as the subject matter of

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[4] I have used extensively for this section G. REALE-D. ANTISERI, *Historia del Pensamiento Filosófico y Científico*, 3 vols., Herder, Barcelona 1992. Most of the authors I mentioned here are the ones mentioned by Peirce in his writings.

science in the strict sense, as different from opinion (*doxa*).[5] He also made a distinction between theoretical science and practical science. Aristotle regarded science as demonstrated knowledge of the causes of things, distinguished from dialectics where the premises are not certain, and from eristic where the object is to win over an audience. To Plato's distinction of sciences, he added *productive science*, labeled *theoretical science* as superior to *practical* and *productive science*. He commented also that the sciences are irreducibly plural, and each is to be understood in its own terms. The Stoics and the Epicurians made the classifications of the different disciplines, in which physics is the study of the natural world.

During the Middle Ages science was usually interpreted in the strong sense of science associated to *episteme*, and this is said to be the kind of knowledge God has of the world. Science was viewed chiefly as the means of understanding God's creation. The *Trivium* and the *Quadrivium*, on the other hand, contained a number of studies qualifying as sciences in the less strict sense. Dominic Gundisalvo, one of the best translators of the *collegium* of Toledo, following a Neoplatonic Arabic version of Aristotelianism, divided the sciences into: human, which rests on reason; and divine, which

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[5] According to Plato, there are studies preliminary to *episteme* like the *mathema* (the lessons). Peirce could have taken this into consideration when he made his classification of science and placed mathematics as the first science.

rests on revelation. Human sciences are composed of *science of eloquence*, the *middle science* (mathematics) and the *science of wisdom*. Divine sciences consisted of *theoretical philosophy* and *practical philosophy*. Hugh of St. Victor distinguished between theoretical, practical and mechanical sciences, all of which he regarded as auxiliary to mystical contemplation. Averroës, taking "being" as an univocal term, opined science to be eternal, dealing with the quiddities of things. It should be noted that it was during this period that there was no conscious conflict between science and religion. As St. Thomas Aquinas pointed out, God was the author of both the book of Scripture and the book of nature. The guide to nature was reason, the faculty that was the image of God in which mankind was made while Scripture was direct revelation, although it needed interpretation, for there are passages that are obscure or difficult. The two books having the same author cannot contradict each other according to Aquinas, for science and revelation marched hand in hand. Aquinas carefully wove knowledge of nature into his theology, as in his proof from motion of the existence of God. Robert Kilwardby, the archbishop of Canterbury and a critic of Aquinas, likewise distinguished between sciences that treat of divine things and those that treat of human things. In the former he included natural, metaphysical and mathematical sciences while classified ethics, the mechanical arts and logic in the latter. Roger Bacon, on the other hand, averred that

truth is the daughter of time and science is not a work of an individual but of humanity. With the passing of time, men who came after will erase the errors of those who preceded them.[6] The sciences rest on mathematics, and advance only when their facts are contained under mathematical principles. Mathematics to Bacon is the alphabet of philosophy. He argued that *experimental science*, embodying both observation and mathematics, is superior to *speculative science*. But theology, drawing on internal experience is superior to both. William of Ockham, for his part, made the distinction between *rational science* and *science of real things*.

In the Modern Ages, Galileo Galilei, the father of modern science, in his *Dialogues Concerning Two New Sciences* (1636) powerfully exemplified the method sketched by Roger Bacon by interrelating empirical and formal considerations in such a way that theories can be confirmed and disconfirmed. To Galileo, science is the knowledge of reality because it describes the objective qualities (primary) of bodies and not the subjective qualities (secondary). Isaac Newton, tended toward a positivistic view of science, claiming that he does not invent hypothesis. He placed emphasis in the discovery of mathematical pattern of the data. Francis Bacon stressed the role of inductive method in science, as it is the path to truth

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[6] In my own personal opinion, this is the basis of Peirce's definition of science, with its characteristics of community, continuity and fallibilism.

whose other face is utility. For Bacon the sciences are definitely plural, reflecting human faculties, as for example, natural science which derives from reason, and history from memory. Rene Descartes for his part said that science could have no basis apart from reason, and the method of reason is adaptable to any problem whatever. He associated science with certitude and concurred with the medieval dictum that true science is identical with God's knowledge. Thomas Hobbes, dividing the sciences into those deriving from facts, and those deriving from reason, placed historical and empirical subject-matter in the first classification, and formal studies in the second. Immanuel Kant for his part associated scientific knowledge with synthetic *a priori* judgments, following the principles embedded in human nature. Such judgments relate only to the physical world. William Whewell stressed the importance of inductive sciences, and suggested the importance of "colligation"[7] in the ordering of scientific data like finding the conceptions which allows one to see facts as connected.

In the advent of positivism during the nineteenth century, Auguste Comte found the sciences to represent a spectrum of decreasing abstractness from mathematics to sociology, in the order of their appearance in the world. To him, every science must pass through theological and metaphysical stages on the

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[7] Whewell used the term as the placing of isolated information under a general conception. Colligation for example is the manner in which an elliptical orbit organized separate observations of planetary position.

way to the positive scientific stage which is their proper goal. His positivism consisted in urging that scientific explanation become dominant in every field of human experience. John Stuart Mill insisted that all the sciences, even mathematics, are inductive and therefore probabilistic. Herbert Spencer looked on philosophy as the end of knowledge, seeking total unity, and using as its data the partial unities achieved by the separate sciences. Wilhelm Wundt agreed with Spencer that philosophy has the task of completing the sciences. He regarded the sciences of culture as irreducible to the natural sciences while viewing psychology as an experimental science open to the data of both external and internal experience. To Charles Sanders Peirce, science is the basic mode of inquiry, which some historians of science say as the pragmatic view.

2.1.2. Peirce's Conception of Science

In the following composition Peirce asserts that, because of its complexity and its diversity, science escapes precise definition and goes beyond classification:

> "What is Science? We cannot define the word with the precision and concision with which we define Circle, or Equation, any more than we can so define Money, Government, Stone, Life. The idea, like these, and more than some of them, is too vastly complex and diversified. It embodies the epitome of man's intellectual development. We can only single out some leading properties of it, and different people will select these differently. To most men, including all who are outside of the world of science, the term means a particular kind of knowledge. Wherein lies the essential peculiarity of this knowledge? Some thinkers agree with the ancient Greeks in making it consist in the Method of knowing, the manner

in which the truth is laid hold on. But the majority of modern writers regard the Systematic character of the doctrine itself as more characteristic. Both marks of scientific knowledge are exceedingly important; but the former is deeper cut, and because it is at present less noticed, more needs to be emphasized. Plato is quite right in saying that a true belief is not necessarily knowledge. A man may be willing to stake his life upon the truth of a doctrine which was instilled into his mind before his earliest memories without knowing at all why it is worthy of credence; and while such a faith might just as easily be attached to a gross superstition as to a noble truth, it may, by good luck, happen to be perfectly true. But can he be said to know it? By no means: to render the word knowledge applicable to his belief, he must not only believe it, but must know, —I will not say, with the ancients, the rationale of the real fact, as a reality,— but must know what justifies the belief, and just WHY and HOW the justification is sufficient. I beg that the reader will turn this over in his mind and satisfy himself as to how far what I am saying is true. For it is not a very simple point but is one that I intend to insist upon."[8]

Further, he detected that the nineteenth-century writers took their hint about science from Coleridge's *Encyclopaedia Metropolitana* which is a simpler version of Kant's definition of science as a systematized or organized body of knowledge which in turn is "only a modification of the ancient view that science is the knowledge of a thing through its causes, —the comprehension of it, as we might say,— as being the only

[8] C. S. PEIRCE, *CP* 7.49, undated.

perfect knowledge of it (*CP* 7.54, c.1902) In the unpublished introduction to his project, "History of Science," Peirce affirms that lexicographers and non—scientists may regard science as an "organized body of knowledge," but the authentic scientist regards his pursuit as a "mode of life."[9] Science is the "pursuit of those who are devoured by the desire to find things out (...)" (*CP* 1.8, c.1897). Science is the pursuit of scientific men who are motivated by the pure love of knowledge for its own sake. Peirce wrote that there are three classes of men: the first one are the men of arts for whom nature is a picture and the chief things are the qualities of feelings; the second one are the men for whom nature is an opportunity, who only respect power, the practical men who carry on the business of the world; and the third class of men sees the nature as cosmos, so admirable, that to penetrate its ways seems to them the only thing that makes life worth living. These are the natural scientific men, who are possessed by a passion to learn, to whom nothing seems great but reason.[10]

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[9] C. S. PEIRCE, *MS* 1269, c.1892. See also C. S. PEIRCE, *Charles S. Peirce: Selected Writings. Values in a Universe of Chance*, Wiener, P. (ed.), Dover, New York 1966.

[10] Cf. C. S. PEIRCE, *CP* 1.43, c.1896. In *MS* 1334 (1905), intended for the Adirondack Summer School, he made another distinction of scientific men whose purpose was to worship God in the development of ideas and of truth.

"If we are to define science, not in the sense of stuffing it into an artificial pigeon-hole where it may be found again by some insignificant mark, but in the sense of characterizing it as a living historic entity, we must conceive it as that about which such men as I have described busy themselves. As such, it does not consist so much in knowing, nor even in "organized knowledge," as it does in diligent inquiry into truth for truth's sake, without any sort of axe to grind, nor for the sake of the delight of contemplating it, but from an impulse to penetrate into the reason of things. This is the sense in which this book is entitled a History of Science. Science and philosophy seem to have been changed in their cradles. For it is not knowing, but the love of learning, that characterizes the scientific man; while the "philosopher" is a man with a system which he thinks embodies all that is best worth knowing. If a man burns to learn and sets himself to comparing his ideas with experimental results in order that he may correct those ideas, every scientific man will recognize him as a brother, no matter how small his knowledge may be.

But if a man occupies himself with investigating the truth of some question for some ulterior purpose, such as to make money, or to amend his life, or to benefit his fellows, he may be ever so much better than a scientific man, if you will —to discuss that would be aside from the question— but he is not a scientific man."[11]

Science, then, to Peirce is a mode of life. It is essentially a mode of inquiry. It is not a sporadic moment when one is

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[11] C. S. PEIRCE, *CP* 1.44-5, c.1896.

inspired begins to conceive new ideas. It is a lifelong struggle, a continuous search for a particular goal, being revised and corrected from time to time, compared to the findings of others, when new discoveries are found. Science does not stop when a scientist dies, nor does he carry with him in his grave his pursuit and findings. It becomes his legacy no matter how mistaken he was in his positions, because it serves the scientific community as a stepping stone to a better formulation. To support this claim he cites Francis Bacon's differentiation of science as a body of results and science a method of discovery:

> "Lord Bacon remarks that 'the sciences, as we now have them, are nothing but certain orderly arrangements of things previously discovered; not methods of discovery, or schemes of obtaining new results' (*Novum Organum*, lib.1, aph.8). This is the first anticipation of the contrast between the way in which active science appears to any devotee of it and to one who has a general reader's and news-devourer's interest in the more striking of the discoveries that are from time to time announced. The latter person, if he happens to be a lexicographer, will insists in defining science as "an organized body of knowledge;" while the former, science is a mode of life, like the profession of priest, or practicing physician, or active politician; and that which distinguishes the life of science, in the eyes of the scientific man, is not the *attainment* of knowledge, but a single-minded absorption in the *search* for it for its own sake —a single-mindedness that forgets every theory the moment the facts of observation appear against it. It is in the sense of the *search after knowledge for its own sake* that this book endeavors to sketch the history of science. No study is excluded, no

matter how unsuccessful, provided it is animated by the love of truth for truth's sake (...).[12]

In his second paper of the Practical Sciences, part of his Classification of Science project Peirce continues to acknowledge Bacon's vision of science:

"(...) If, on the other hand, one opens the works of Francis Bacon, one remarks that, with all the astounding greenness and inexperience of his views of science, in some respects he is really a scientific man himself. He met his death as the consequence of an experiment. True, it was rather a foolish one; but what a monument to the genuineness of his intelligence, that he, a great legal light, should, at the age of sixty-six, have perished from his zeal in performing disagreeable and dangerous laboratory work that he thought might go toward teaching him something of the nature of true science! For him man is nature's interpreter; and in spite of the crudity of some anticipations, the idea of science is, in his mind, inseparably bound up with that of a life devoted to single-minded inquiry. That is also the way in which every scientific man thinks of science. That is the sense in which the word is to be understood in this chapter. Science is to mean for us a mode of life whose single animating purpose is to find out the real truth, which pursues this purpose by a well-considered method, founded on thorough acquaintance with such scientific results already ascertained by others as may be available, and which seeks cooperation in the hope that the truth may be found, if not by any of

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[12] C. S. PEIRCE, *MS* 1269, c. 1892. Italics his.

the actual inquirers, yet ultimately by those who come after them and who shall make use of their results. It makes no difference how imperfect a man's knowledge may be, how mixed with error and prejudice; from the moment that he engages in an inquiry in the spirit described, that which occupies him is science, as the word will here be used.

By a specific science will be meant a group of connected inquiries of sufficient scope and affinity fitly to occupy a number of independent inquirers for life, but not capable of being broken up into smaller coexclusive groups of this description. For since we are to consider science in general as a mode of life, it is proper to take as the unit science the scientific mode of life fit for an individual person. But science being essentially a mode of life that seeks cooperation, the unit science must, apparently, be fit to be pursued by a number of inquirers" (...).[13]

For Peirce, the traditional conception of science as a systematic or organized knowledge is a "shallow cut" which captured only the 'fossilized remains of science" (*MS* 614, 1908). Science as a mode of life in Peirce's perspective has a socio-historical frame. According to Delaney, "since human life is a socio-historical phenomenon, it should not be surprising that someone whose most fundamental characterization of science is as mode of life should conceive

[13] C. S. PEIRCE, *CP* 7.54f, c. 1902.

of science as essentially social and historical."[14] When Peirce speaks of science in general or of some particular science what he is concretely talking about is a community of inquirers extended over time with a unity of purpose and method which enables the product to be much more than the sum of the individual contributors.[15] Science is a quest, not of a sole man but of a community of inquirers, it is a collective and not an individual effort. It has been running since the ancient times, and it is a long-term pursuit. That the findings of the former scientists may have been valid during their time but not in our present time does not mean that it was a useless one. No, for scientists of the present have used it as a platform to gain a higher ground and look ahead a millimeter higher than the former one.

For Peirce, the motive of the scientist is the search of knowledge for its own sake. The scientist, animated by the pure love of the truth, pursues knowledge for the sake of knowledge alone. In an article he wrote about great scientists of the nineteenth-century for the *Annual Report of the Smithsonian Institution for the Year ending June 1900*, Peirce mentions understanding science as a pursuit of a certain group of men like Darwin, Wallace, Joule, Bernoulli, Helmholtz and Mendeleef. The singular characteristic of these men was their

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[14] C. DELANEY, *Science, Knowledge, and Mind: A Study in the Philosophy of C. S. Peirce*, University of Notre Dame Press, Notre Dame 1993, p. 77.

[15] Cf. C. DELANEY, *Science, Knowledge, and Mind*, pp. 13-15.

"devotion to the pursuit of truth for truth's sake.[16] Basically, the gist of Peirce's theory of continuity and community lies in the continuous ratification of the scientific truth by a group of inquirers bound by the same interest in quest for truth, for "science is a living historic entity" (*CP* 1.44, c. 1896) and "a living and growing body of truth" (*CP* 6.428, 1893). From his own experience as a scientist, his knowledge of the history of science, and his expertise as a methodologist of science, he asserts that scientific truths are fallible. "I will not therefore, admit that we know anything with *absolute certainty*" (*CP* 7.108, c. 1896. Italics his). For whether our precepts, infallible though they be, are representative of the real world or merely of a lively imagination is a question which I have no means of answering with *absolute certainty*" (*CP* 2.142, c. 1902. Italics his.). Sir John Maddox, until recently the editor of *Science*, expresses a similar opinion: "Scientific truths evolve with time. We perfect them without ceasing. Nowadays we pose to nature sharper questions. In the same manner, we wait for the answers to acquire more subtlety. This continuous refinement is what we call scientific advancement. Scientists pose eternally questions that their predecessors did not have the mental sensibility to imagine before. It is because scientific

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[16] C. S. PEIRCE, *Complete Published Works including Secondary Materials, Microfiche Collection*, Ketner, K. et al (eds.), Johnson Associates, Inc. Greenwich 1977.

truth is relative and not absolute."[17] This was really the point Peirce detected a hundred years in advance.

Peirce vigorously attacks the notion that science is there for the sake of action like Pearson, who in his *Grammar of Science* advocates an utilitarian view of science. The sole concern of science is to attain truth. Peirce expresses this in a solemn way:

> "The scientific man is deeply impressed with the majesty of truth, as something reasonable or intelligible which is bound sooner or later to force itself upon every mind. It is not too much to say that he worships the divine majesty of the power of reasonableness behind the fact. From that sentiment springs his ardent desire to further the discovery of truth. If he cannot discover it himself he wishes to lay a sure foundation from which some successor may come to the truth; —and the more far-reaching and general the particular question that he aims [at], the more it inspires him. It may be that all that he himself expects to ascertain is a minute fact,—say the parallax of a star. But he anticipates that this fact along with many others will ultimately lead to a great discovery."[18]

To Peirce, science is a way of life and it has no other function but to learn the truth.

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[17] Cf. J. MADDOX, "La Relatividad de la Teoría," *Fuentes Unesco* 68 (April 1995): 9.

[18] C. S. PEIRCE, *CP* 8.136, 1901.

2.2. Science as the Pursuit of Truth

Is science concern with truth? For Peirce truth is science's defining aim. He even lambasted on those who took a more 'practical' view of science, subordinating it to other aims no matter how noble they might make of science. In the review he made of Karl Pearson's *Grammar of Science* published in the January 1901 issue of *The Popular Science Monthly*, Peirce remarks strongly: "I do say, however, that truth is truth, whether it is opposed to the interests of society to admit it or not (...) I must confess that I belong to that class of scallawags who propose, with God's help, to look the truth in the face, whether doing so be conducive to the interests of society or not" (*CP* 8.143, 1901). The reason is, for Peirce, the goal of scientific inquiry is truth and, in spite of the fact that there is much by way of practice that is intrinsic to the achievement of this goal, to make the truth subordinate to any practical aims, be they be religious, social, or educational, was to corrupt the scientific spirit. The editors of the *Collected Papers* compiled into a chapter Peirce's varying intent at defining the term "truth." Robin's *Annotated Catalogue of Papers* lists a handful manuscripts regarding truth.[19] But before I proceed with Peirce's conception of truth, I'll go over very briefly on the evolution of the theories of truth.

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[19] Cf. C. S. PEIRCE, *CP* 5.549-604, 1905-06. Robin lists 26 groups of manuscripts with varying lengths.

2.2.3. What is truth?[20]

Truth is the English equivalent of the Latin word, *veritas* and the Greek word, *aletheia*. It comes from the Old English *treowth* which means "fidelity" and akin to *treowe* which means "faithful." Among *Webster's Collegiate Dictionary*'s definitions runs this way: "it is the property of being in accord with fact or reality." It is the commonly accepted object of knowledge and aim of inquiry. It is the opposite of falsity and at times of opinion. Truth was the concern of philosophers from time inmemorial as revealed by history of philosophy. At present, five theories of truth have emerged: a) the correspondence theory of truth, circulated by Russell among modern philosophical writers although it dates back to medieval age, states that truth consists in some form of correspondence between belief and fact; in short, the "true" corresponds to reality;[21] b) the coherence theory of truth expresses that to say that a statement (usually judgment) is

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[20] I used extensively for this section G. REALE-D. ANTISERI, *Historia del Pensamiento Filosófico y Científico*; J. GARCIA, *Doctrina de Sto. Tomas sobre La Verdad: Comentarios a la cuestión 1ª "De Veritate,"* EUNSA, Pamplona 1967; S. HAACK, *Philosophy of Logic*, Cambridge University Press, Cambridge 1978, pp. 86-134. I also acknowledge here the valuable help extended to me by Prof. Dr. Jose Luis Fernandez for guiding me in all the questions about *De Veritate* when I was his student.

[21] Cf. A. PRIOR, "Correspondence Theory of Truth," *The Encyclopedia of Philosophy*, P. Edwards (ed.), vols. 2 MacMillan, New York 1967, pp. 223-232.

true or false is to say that it coheres or fails to cohere with a system of other statements. So, "true" is the coherent system of ideas, that is, the more our beliefs hang together in a system, the truer they are;[22] c) the pragmatic theory of truth declares that "true" is the workable or satisfactory solution of a problematic situation;[23] d) the semantic theory of truth expresses that assertions about truth are in a metalanguage and apply to statements of the base language; it is a form of correspondence theory in terms of languages and metalanguages developed by the Polish-American mathematician and logician, Tarski, in his studies of the expressions of language and the objects to which such expressions refer;[24] and e) the redundancy theory derives primarily from the works of F. P. Ramsey. His idea is that predicates "true and "false" are redundant in the sense that they can be eliminated from all contexts without semantic loss; he allows that they have a pragmatic role, for emphasis or stylistic reasons. From Ramsey's theory, Strawson developed his performative theory of truth under the influence of Austin, which states that the assertion of truth is the

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[22] Cf. A.. WHITE, "Coherence Theory of Truth," *The Encyclopedia of Philosophy*, P. Edwards (ed.), vol. 2, MacMillan, New York 1967, pp. 130-133.

[23] Cf. G. EZORSKY, "Pragmatic Theory of Truth," *The Encyclopedia of Philosophy*, P. Edwards (ed.), vol. 6, MacMillan, New York 1967, pp. 427-430.

[24] Cf. S. HAACK, *Philosophy of Logic*, pp. 99-127.

performative act of agreeing with a given statement; in other words, to say that a sentence is true is to express agreement with the sentence, for 'true' and 'false' are not descriptive terms for this author; they are rather performative or expressive. Other mutations of the redundancy theory are: the prosentiential theory developed by Belnap, Camp and Grover; and the simple theory developed by Prior, Mackie and Williams.[25]

Ancient Greek philosophers assumed that an objective truth can be found. This was later rejected by the Sophists. Protagoras held that truth is relative, whether relative to the individual or the species is not clear from his account. Plato relates to both correspondence and coherence theories. In fact he is considered to be the initiator of the correspondence theory of truth. In his dialectics, he describes that truth finally relates to itself alone and only such criteria as coherence and consistency apply to the act of beginning, continuing, and ending in ideas. Aristotle provided the definite expression of the correspondence theory: to say of what is that is not, or of what is not that is, is false; while to say what is that it is and of what is not that is not is true, for it is by the facts of the case, by their being or not being so, that a statement is called true or false. But Eubulides of the Megara school founded by Euclid, which seems to be in constant warfare with the Platonic-Aristotelian school, pointed a distressing consequence of the theory: the paradox of the liar, which

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[25] Cf. S. HAACK, *Philosophy of Logic*, pp. 127-134.

renders that whatever we say about the truth or falsehood of an utterance entails its own opposite. Eubulides' paradox of the liar rendered the Aristotelian one-sided dependence of the truth or falsehood of a proposition on the related matter of fact to crumble, since the related matter of fact in this instance is the truth or falsehood of the proposition. The Stoics held substantially Aristotle's account of truth notwithstanding Eubulides' paradox of the liar, but with modifications. the Stoics held that truth in the primary sense is a property of statements or *axiomata*, not in the sense of sentences but in the sense of what the sentences state or mean. Plotinus for his part argued that truth requires an identity between thought and thing, moving beyond correspondence to an identity theory of truth.

During the middle ages an intense discussion occurred concerning the doctrine of double truth presumably sustained by Averroës. This doctrine claims that what is true in philosophy might be false in religion and inversely. St. Thomas Aquinas, along with the Scholastics sustained the correspondence theory. In fact, *correspondentia*, used to denote the relation of thought and reality, was employed by the St. Thomas at least once.[26] But he utilized other expressions more often and even preferred the definition of truth which he attributed to the ninth-century Jewish Neoplatonist Isaac Israeli: *Veritas est adequatio rei et intellectus* (Truth is the adequation of things and the intellect).

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[26] Cf. T. AQUINAS, *De Veritate*, q. 1, a. 1.

The Scholastics had diverse manner of understanding truth and they tried to conjugate these manners. The truth, or rather, the true, *verum*, is a transcendental property, also called at times as metaphysical truth and later on as ontological truth. It is defined as the conformity of the being with the mind. So the *verum*, like one of the transcendentals, is the relation of the being with the intellect. It presupposes that the being is intelligible, otherwise, no conformity could be mentioned. But the Scholastics also understood truth as the conformity of the mind with the thing, or the adequation of the mind with the thing. This type of truth has been referred to at times, although not always adequately, as logical truth. Logical truth only refers to enunciations and not to ideas.

Rene Descartes of the Modern Ages, accepted the correspondence theory and added one distinctive feature; that is, clarity and distinctness of an idea is a sign of its truth. Baruch Spinoza admitted the same the principle of truth. The argument he held was that truth is its own standard. Using the analogy of light that reveals both itself and darkness, he affirmed that truth is the standard of itself and the false. Wilhelm Leibniz for his part made a distinction between 'truths of reason' and 'truths of fact.' The former rests on the principle of identity, and the latter on the principle of sufficient reason. Furthermore, the former is necessary and the latter contingent. The empiricists, on the other hand, like Thomas Hobbes, regarded truth as the right ordering of names. For Hobbes, true and false are attributes of speech, not of things. This explains his confidence in saying that he who reasons aright in words can never fall into error. John Locke, in agreement with Leibniz's distinction of types of

truth, distinguished 'truths of words' which rests on the agreement of ideas from 'truths of thought' which rests on the agreement of ideas with things. Likewise, he contended that truth and falsity relate to propositions rather than to single ideas. Although Locke supported the correspondence theory, his ideas are mixed with the coherence principle already. David Hume pursued the same line using different terminologies separating 'matters of fact' from 'relation of ideas.' Immanuel Kant for his part, held truth to relate to judgments and added the synthetic *a priori* judgment to the developing coherence theory of truth. Georg Hegel distinguished between formal and historical truth, the former relates to mathematics and the latter to concrete existence. He similarly talked of absolute truth as the final synthesis of universal and individual, abstract and concrete factors. Sören Kierkegard objecting to Hegel's conception distinguished between truth as subjective appropriation and as objective approximation, sustaining that the latter led to endless approximation, he sustained the former claiming that in this deeper sense, truth is subjectivity.

William James regarded truth as whatever one put into satisfactory relations with the world. Truth is the desirable in the way of behaving. According to him, it is both changeable and progressive. This is what is commonly regarded as the pragmatic doctrine of truth. Other pragmatists like Francis C. S. Schiller followed the pragmatic doctrine of truth formulated by James specially concerning its changeable nature. John Dewey continued this pragmatic doctrine, relating inquiry to problem-solving. Dewey substitutes for such terms as 'truth' and 'knowledge' the phrase 'warranted

assertability,' since the goal of inquiry is a transformed situation rather than abstract truth. Contemporary to them is Peirce, the founder of pragmatism, who defines truth as the set of beliefs which would be held by a community of inquirers in the long run after an indefinitely long series of inquiries. The objective complement of these beliefs would be the real.

2.2.4. C. S. Peirce's conception of truth

There sparked a confusion among Peircean scholars regarding Peirce's conception of truth. Haack, for example, claimed that Peirce confuses the meaning of truth with its criteria.[27] Thayer for his part held the posture that Peirce offers a definition of truth and not the criterion of truth.[28] Misak on the other hand, explained that Peirce's pragmatic elucidation of truth is neither a definition or a criterion, it is a specification of what can expect of a true hypothesis.[29] The succeeding section presents the evolution of Peirce's conception of truth.

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[27] Cf. S. HAACK, "Two Fallibilists in Search of Truth," *Proceedings of the Aristotelian Society*, suppl (1977): 79

[28] Cf. H. THAYER, *Meaning and Action: Critical History of Pragmatism*, Hackett Publishing, Indianapolis 1984, pp. 125-132.

[29] Cf. C. MISAK, *Truth and the End of Inquiry: A Peircean Account of Truth*, Clarendon Press, Oxford 1991, p. 42.

Altshuler declares that Peirce presented his first conception of truth in his elaborate attack to Cartesianism. In particular, Peirce rejects Descartes' notion of an intuition as a piece of immediate awareness of an entity as having certain properties. Altshuler is referring to Peirce's series of articles published in *The Journal of Speculative Philosophy* between 1868-1869.[30] According to him, in Peirce's intent to remove the epistemological thrust from Descartes' new ways of ideas, he was proving that there can be no immediate access to one's own mental states, for such self-awareness is ultimately derived from attributions of properties to objects ordinarily regarded as external. For that reason, Peirce introduces a model for explaining the characteristics of individual perceptions or judgments, viewing every perception as determined by a previous perception whose connections are inferential in form. Thus, the existence and characters of our perceptions are explained by displaying their inferential derivations from other perceptions. But Altshuler has detected that there is a fissure in this model since Peirce cannot make any reference to what lies outside consciousness in accounting for the character of our thoughts. The accuracy with which certainty to a perception represents its object must also be determined within the bounds of thought, and it is at the very

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[30] The articles referred to are "Questions Concerning Certain Faculties Claimed for Man" (*CP* 5. 213-263, 1868), "Some Consequences of Four Incapacities," (*CP* 5. 264-317, 1868) and "Grounds of Validity of Laws of Logic: Further Consequences of Four Incapacities," (*CP* 5. 318-357, 1869).

moment that Peirce expresses concisely his views of truth as beliefs affirmed at the ideal end of scientific investigation.[31]

Chiu says that there is a notion of truth in Peirce earlier than the findings of Altshuler. With the help of the publication of the chronological editions of Peirce' writings, Chiu found an odd definition of truth, and was used by Peirce in quite a wider sense than we do nowadays. He was referring to Peirce's "Treatise on Metaphysics" where Peirce presents his point of view: "*True* is an adjective applicable solely to representations and things considered as representations. It implies the agreement of the representation with its object" (*W* 1.79, 1862).[32] Indeed it is odd since this definition gives three kinds of truth. The simplest kind of agreement of truth is resemblance between the representation and its object which Peirce call *verisimilitude* and represented by a *copy*. Verisimilitude consists in likeness, a similarity of predicates but it has a limit, thus verisimilitude is partial truth (*W* 1.79). The second kind of agreement of truth is by convention called *veracity*, whose representation is a *sign*.[33] It consists in the

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[31] Cf. B. ALTSHULER, "Peirce Theory of Truth and his Early Idealism," *TCSPS* 16 (1980):119-140; "The Nature of Peirce Pragmatism," *TCSPS* 14 (1978):147-175.

[32] This definition of truth appeared also in 1867 in a review written by Peirce of Venn's *Logic of Chance* published in the July 1867 issue of *North American Review*.

[33] Altshuler also said that Peirce's conception of truth is related to his theory of signs.

constant connection between the sign and the thing, but when the sign goes without the thing, it may speak falsely. The third kind of agreement is based upon the very nature of things called *verity*, represented by a *type* (*W* 1.80). The truth of thought (or conception) belongs verity.

In Chiu's analysis, a conception is a type (of things), corresponding with a quality (of things) in Peirce. The truth of conception depends on whether things have that quality or not. This connection of things and quality is called 'unity of substance.' In an earlier paper, "Views of Chemistry" which in my opinion, Peirce wrote for Zina Fay's sister, he mentions that "every quality belongs to a substance (*W* 1.54, 1861). So unity of substance is in the nature of things, for that reason Peirce calls verity as the unity of substance (*W* 1.83) which can be obtained by our faculties under normal conditions.

Peirce's view of truth, Chiu continues, shows that a true thought can mainly be understood either as a true conception or a true proposition. The former is a product of the mind and the thing since it depends on the unity of substance —the thing's possessing the quality represented by the conception, and the normality of the act of the faculties by which the conception is obtained. Nonetheless, the unity of substance can be expressed by a judgment (proposition), where the subject represents the thing and the predicate represents the quality. Hence the truth of the judgment (proposition), like the truth of the conception, is also related to the normality of the act of our faculties as well as the agreement of the judgment with its object. Furthermore, Peirce holds that every judgment is a conclusion of an inference, which mean to say that every judgment is determined by other judgments based on the

agreement of the proposition with its object, the normal act of our faculties and the illative relation of the proposition to other propositions. Chiu believed that Peirce theory of truth is greatly laden with epistemological concern. It is not only concerned of the nature of truth but also of our capacity for obtaining truth.[34]

Skagestad for his part opines that in the review Peirce made of Fraser's *The Works of George Berkeley* (*W* 2.462-487; *CP* 8.7-38) in the October 1871 issue of the *North American Review*, Peirce was working already on how to relate his particular concept of truth with the notion of reality.[35] He traced it back from the 1868 article, "Some Consequences of Four Incapacities" (*W* 2.211-242; *CP* 5.264-317) where Peirce characterizes real as "that which, sooner or later, information and reasoning would result in, and which is therefore independent of the vagaries of you and me" (*W*

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[34] Cf. CHI-CHUN CHIU, "The Notion of Truth in Peirce's Earliest System," *TCSPS* 31 (1995): 394-414.

[35] In this review, Peirce gives two different views about reality: a) The real is that which is not whatever we happen to think it, but is unaffected by what we may think of it (*W* 2.467; *CP* 8.12); and b) it is not in respect to this immediate insistence alone that the real is as it is independently of how we think it to be (*W* 2.469; *CP* 8.12). Late in life, Peirce would call the former definition as the nominal definition, a verbal definition and not a doctrine (*CP* 5.525, 1905) and the latter as the 'realist' or the pragmatic definition. The difference between the two is that pragmatism emphasizes the permanency and fixity of reality whereas nominalism emphasizes its externality.

2.239) and real cognitions as "those which, at a time sufficiently future, the community will continue to re-affirm" (*CP* 5.311), and then, in his review of Berkeley, Peirce expresses his view of the real implicitly: "There is, then, to every question a true answer, a final conclusion, to which the opinion of every man is constantly gravitating. He may for a time recede from it, but give him more experience and time for consideration, and he will finally approach it" (*CP* 8.12). A little later in the same article, this was made explicit:

> This conception of reality is so familiar, that it is unnecessary to dwell upon it; but the other, or realist conception, if less familiar, is even more natural and obvious. All human thought and opinion contains an arbitrary, accidental element, dependent on the limitations in circumstances, power, and bent of the individual; an element of error, in short. But human opinion universally tends in the long run to a definite form, which is the truth. Let any human being have enough information and exert enough thought upon any question, and the result will be that he will arrive at a certain definite conclusion, which is the same that any other mind will reach under sufficiently favorable circumstances (*CP* 8.12, 1871)

Skagestad identifies it right that at this point, Peirce held truth as correspondence of a belief with reality.[36] This sounds medieval; it is somewhat similar to the correspondence theory

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[36] Cf. P. SKAGESTAD, *The Road to Inquiry: Charles Peirce's Pragmatic Realism*, Columbia University Press, New York 1981, pp. 75f.

of truth —the correspondence between thought and reality— formulated by the middle age philosophers.[37] Truth and reality is tied to scientific inquiry, and they are intrinsically rather than extrinsically related: "To make a distinction between the true conception of a thing and the thing itself, he will say, only to regard one and the same thing from two different points of view; for the immediate object of thought in a true judgment *is* the true reality" (*CP* 8.16). Anterior to this statement Peirce defined reality in terms of the representative capacity of the ultimate beliefs and is conceived of as the "normal product of mental action and not the incognizable cause of it" (*CP* 8.15).

It is quite clear that around this period Peirce held the correspondence theory of truth with reality. Yet some commentators have taken Peirce's conception of truth as the 'consensus theory', which makes truth consists in some actual future consensus that makes truth relative to human opinion. It might be good to recall that the consensus theory of truth was extremely fashionable among nineteenth-century scientists as it is today among postmodernist. The classical expression of the consensus theory is by Herschel in *Preliminary Discourse* (1831): "the grand and indeed only character of truth is its capability of enduring the test of universal experience and coming unchanged out of every possible form

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[37] Misak said that Peirce gives varying criticisms of the correspondence theory of truth but Peirce stood firm in his argument that the notion of an unknowable thing-in-itself is a pragmatically spurious notion (*W* 3.56, 1872; *CP* 6.492, 1896; 6.95,1903; 5.53, 1905; 5.452, 1905)

of fair discussion."[38] Perhaps Peirce adhered to this consensus theory of truth as Murphey insinuated by supposing that Peirce accepted as much as he could of the self-image of contemporary science to legitimize his form of realism in the eyes of his fellow experimentalists. Murphey even branded Peirce as a romantic idealist who disguised as an empiricist in order to appear scientifically respectable.[39] Skagestad pointed out that what led commentators to this interpretation was Peirce's notion of 'long run' and 'community.' This is how he analyzes it: if Peirce contemplates 'long run' as an infinite process, then truth is identified with that unshakable consensus towards which human opinion would converge if inquiry were to go on for a sufficiently long time for opinion to converge towards a consensus which would thereafter never be broken, no matter for how long the inquiry will continue. Peirce insists that the final opinion is to be an opinion which is independent of all that is arbitrary and individual in thought (*CP* 8.12) If the inquiry will continue long enough to establish such opinion, the resulting conception of truth will be objective and absolute.[40]

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[38] Quoted from I. SCHEFFLER, *Four Pragmatists: A Critical Introduction to Peirce, James, Mead, and Dewey*, Humanities Press, New Jersey 1974, p. 70.

[39] Cf. M. MURPHEY, "Kant's Children: The Cambridge Pragmatists," *TCSPS* 4 (1968): 9-14.

[40] Cf. P. SKAGESTAD, *The Road to Inquiry: Charles Peirce's Pragmatic Realism*, p. 74-78.

A line in "How to Make our Ideas Clear," (*W* 3.257-276, 1878) the second article of his Illustrations of the Logic of Science series published in the *Popular Science Monthly*, reads, "(...) we come down to what is tangible and practical, as the root of every real distinction of thought, no matter how subtle it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference of practice" (*W* 3.265, 1878). This passage is believed by many to be Peirce's summary of his pragmatic theory of truth. Peirce claims that when one knows how an object will react to experimental handling, one has achieved a clear idea of that object. To say that the substance is hard is to say that it will not be scratched by other substances. In another essay he made strong assertion on his principle of meaning as against traditional subjectivism.[41] Peirce posited that Descartes took the idea to be clear if it seemed clear to him, never considering the possibility that an idea may seem clear without really being clear. It is not surprising therefore, that Peirce, in considering the meaning of truth, insisted on its social character, deploring Descartes' view to which the individual judgment is the test of truth.

Peirce labeled the philosophical disputes about truth "preposterous," when truth is conceived disassociated from its practical bearings on the actual doubts and beliefs which frame human inquiry. He disputes that metaphysical visions of truth and falsity that conceive them as something existing

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[41] Cf. C. S. PEIRCE, *CP* 5.5.358-387, 1877.

apart from the conduct of inquiry violate the principle of Ockham's razor: *entia non sunt multiplicanda prœter necessitatem* (being must not be multiplied unless by necessity), which Peirce interpret as "try the theory of fewest elements first; and only complicate it as such complication proves indispensable for the ascertainment of truth" (*CP* 4.35, 1893). Furthermore, the doubt that impels scientific investigation is real, but its philosophical complement —the Cartesian doubt— is fabricated by philosophers who hypothesize that a man can simply will to doubt and who apparently think that doubting is as easy as lying, that one can simply do it by saying "I doubt." According to Peirce, men, specially scientific men, however, seek belief. Search for truth in practice is the search for belief. The experimental methods attains those beliefs that will ultimately be accepted by the scientific community. He says, "the opinion which is fated (meaning that which is sure to come true and can no how be avoided) to be ultimately agreed to by all who investigate, is what is meant by truth (...)" (*W* 3.273, 1878).

Peirce ends this article saying that truth is not relative to human experience:

> Our perversity and that of others' may indefinitely postpone the settlement of opinion; it might even conceivably cause an arbitrary proposition to be universally accepted as long as the human race should last. Yet even that would not change the nature of the belief, which alone could be the result of investigation carried sufficiently far; and if, after the extinction of our race, another should arise with faculties and disposition for investigation, that true opinion must be the one which they would ultimately come to. "Truth crushed to earth shall rise again," and the opinion which would

> finally result from investigation does not depend on how anybody may actually think. But the reality of that which is real does depend on the real fact that investigation is destined to lead, at last, if continued long enough, to a belief in it.[42]

In 1901, in his article about truth in Baldwin's *Dictionary of Philosophy and Psychology*, Peirce makes this notion more explicit: "Truth is that concordance of an abstract statement with the ideal limit towards which endless investigation would tend to bring scientific belief, which concordance the abstract statement may possess by virtue of the confession of inaccuracy and one-sidedness, and this confession is essential ingredient to truth" (*CP* 5.565). To illustrate it, he gives **p** as an example. This is what scholars call the ideal-limit theory of truth. Peirce did not advance this theory to rival the correspondence theory since he thinks, that the concept of ideal-limit reveals more fully what is meant by the concept of correspondence. The vestige of Scholasticism in Peirce is very obvious here although he would say that "it is not *wrong* to speak of truth as correspondence with facts; it is just not informative" (*CP* 5.565, 1901).

If truth is something absolutely independent of human opinion and indefinitely beyond the reach of human knowledge, how does it differ from *ding an sich* (thing-in-itself)? The concept of truth as a property possessed by a statement according to Peirce is a meaningless one. Peirce

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[42] C. S. PEIRCE, *CP* 5.408, 1877.

makes it clear in his dictionary article that "an essential ingredient of truth is the confession that our statements *do not* possess it. The only truth of which we can have any conception —the only truth there can be— is that towards which we can attempt to bring our opinions closer, even though we cannot attain it, in the same way that we have the conception of **p** because we know how to bring 3.14159... *closer* to **p**, even if we know that we can never make it equal to **p**.[43]

Truth, then, is not relative to person, time or circumstance but is the absolute limit towards which scientific inquiry tends. This does not mean that anyone will ever be in a position to know he possesses the truth or even to say that truth in fact will be attained, but only to say that it is what he means by the concept of truth. In a letter to Lady Welby he says: "I do not say that it is infallibly true that there is any belief to which a person will come if he were to carry his inquiries far enough. I only say that that alone is what I call truth. I cannot infallibly know that there is any truth" (*SS* 73). Simply put, Peirce is

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[43] C. S. PEIRCE, *CP* 5.565, 1901. Italics mine. Other definition of truth Peirce gives in Baldwin's is about transcendental truth used in senses in which it is not an affection of any sign, but of things as things: The scholastic maxim was *Ens est unum, verum, bonum*. Among the senses in which transcendental truth was spoken of was that in which it was said that all science has for its object the investigation of *truth*, that is to say, of the real characters of things. It as, in other senses, regarded as subject of metaphysics exclusively. It is sometimes defined so as to be indistinguishable from reality, or real existence (*CP* 5.572).

telling us that one may never be in possession of an infallible truth.[44]

> The scientific man is not in the least wedded to his conclusions. He risks nothing upon them. He stands ready to abandon one or all as soon as experience opposes them. Some of them, I grant, he is in the habit of calling *established truths*; but that merely means propositions to which no competent man today demurs. It seems probable that any given proposition of that sort will remain for a long time upon the list of propositions to be admitted. Still, it may be refuted tomorrow; and if so, the scientific man will be glad to have got rid of an error. There is thus no proposition at all in science which answers to the conception of belief.[45]

A scientists who holds an absolute belief is blocking the way scientific inquiry. This goes against what Peirce calls the first rule of reason: "Do not block the way of inquiry' (*CP* 1. 135, c. 1899). [46]

In spite of all his emphasis of fallibilism, Peirce defends the validity of the concept of truth. Although different sciences

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[44] Cf. C. S. PEIRCE, *CP* 5.549-604, 1905.

[45] C. S. PEIRCE, *CP* 1.635, c. 1897. Italics his.

[46] Kolenda said that fallibilism has to do with our use of criteria to determine any given truth. Peirce's fallibilism intends to alert us to the possibility that our criteria of what we claim to be true may need to be revised in the light of further experience. See K. KOLENDA, "Truth and Fallibilism," *TCSPS* 15 (1979): 251-258.

may pursue different kinds of truth, these truths have something in common in them: their reference to what is fated to be believed:

> Now the different sciences deal with different kinds of truth; mathematical truth is one thing, ethical truth is another, the actually existing state of the universe is a third; but all those different conceptions have in common something very marked and clear. We all hope that the different scientific inquiries in which we are severally engaged are going ultimately to lead to some definitely established conclusion, which conclusion we endeavor to anticipate in some measure. Agreement with that ultimate proposition that we look forward to, —agreement with that, whatever it may turn out to be, is the scientific truth.[47]

2.3. Peirce's Classification of Sciences

Peirce was aware of the historical and contemporary developments of the classification of sciences. Why would he think it necessary to make another classification of the sciences?

2.3.1. Logical Basis of Classification

Peirce's interest in the classification of sciences probably dates back to the brief period when he was a student of Louis

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[47] C. S. PEIRCE, *CP* 7.187, 1901. I have presented here Peirce's line of thought about truth. A full discussion of the validity of his approach surpasses the goal of this dissertation.

Agassiz, the author of the famous *Essay on Classification*. In 1860, when Darwin's *Origin of Species* arrived in America, Peirce was with Agassiz in Louisiana studying the techniques of classification. Taxonomy is the study of the general principles of the orderly classifications of plants and animals according to their presumed natural relationships. The ubiquitous desire of man to understand the abundance of life surrounding humanity originated this study. The habit of arranging things according to its likeness and unlikeness is in itself an elementary form of this classification. When the alluring patterns exhibited by particular organisms happen again, the idea of design in nature surfaces. Animals and plants form a hierarchy and an interconnectedness of species. All these, Peirce recognized, he learned from Agassiz. Armed with the knowledge of taxonomy, he would apply it also in his attempts to classify the sciences. Peirce's efforts to classify the sciences were inexhaustible, as the copious pages of his writings spent on this task testify.[48]

According to Kent, Peirce believed that a new classification would "vindicate his categories by providing them with an architectonic within which they might be tested," and would "show where philosophy and its subdivisions fitted in with other intellectual pursuits."[49] We can recall that it was

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[48] Cf. R. ROBIN, *Annotated Catalogue of the Papers of Charles S. Peirce*, University of Massachusetts Press, Amherst 1967. pp. 151f.

[49] B. KENT, *LCS*, p. 17.

logic which led him to this pursuit. In his application letter for a grant to the Carnegie Institution Peirce said:

> "(...) I imbibed from my boyhood the spirit of positive science, and especially of exact science; and early became intensely curious concerning the theory of the methods of science; so that, shortly after my graduation from college in 1859, I determined to devote my life to that study; although indeed it was less a resolve than an overmastering passion, which I have been for some years unable to hold in check. It has never been abated. In 1866, and more in 1867, I ventured upon my first original contributions to the science of logic, and have continued my studies of this science ever since, with the rare interruptions of a few months only each. Owing to my treating of logic as a science, like the physical sciences in which I have been trained, and making my studies specially minute, exact, and checked by experience, and owing to the fact that some logic had seldom before been so studied, discoveries poured in upon me in such a flood as to be embarrassing (...)."[50]

Besides, at the time due to the lack of unanimity among logicians, there was little agreement on the position that logic should occupy in a classification scheme. It was also his purpose to know what place and relations logic play with the other sciences. "My classification of the sciences will give you

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[50] C. S. PEIRCE, *L* 75, 1902. Also in C. EISELE, *Historical Perspectives on Peirce's Logic of Science: A History of Science*, vol. 2, Mouton Publishers, Berlin 1985, p. 1023.

a first inkling of my notion of the position that logic holds among the sciences" (*MS* 1334, 1905).

A new classification will show what kind of science logic must be and its relation to the other sciences. In Kent's analysis of Peirce's writings, she found out that it was not until 1889 that he began a systematic search for a satisfactory classification of sciences, although he undertook the classification of science as early 1866.[51] Peirce's primary purpose in developing a classification of the sciences was to display a given science in relation to other sciences in order to exhibit its conceivable effects. The fundamental virtue of a classification scheme is its simplicity, which will also prevent it from displaying the more intricate relations between the sciences (*MS* 615, 1908). Moreover, Peirce believed that all sciences are engaged in the common task of portraying the universe in an "intelligible presentments;" his classification sketched the outline of their composition (*MS* 601, undated). Once a science is positioned, the scheme will not only display what sort of science it is, it will also reveal which science must be appealed to principles, which for problems, data, and which to appeal for alternative methods. Yet Peirce could not remove logic from his mind as a science. Until the place of logic has been correctly determined, the method of investigation remains uncertain. For Peirce logic seeks to show how truth might be attained; all the other sciences comprise the various divisions of the attempt to reach the

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[51] Cf. B. KENT, *LCS*, pp. 20-47.

truth. Peirce thought that a systematic study of logic would result from an examination of its relation to the other sciences, of their relations to one another, and of the assistance they render to one another.[52]

Early scholars in Peirce have sometimes understood this as a forerunner of Russell and Whitehead's *Principia Mathematica*.[53] Buchler, for example, once remarked, "Peirce attempts to derive arithmetic from logic," and concluded that Peirce's studies toward defining traditional mathematical relations in terms of logic deriving mathematical propositions from a small set of analytic propositions, "were an important contribution foreshadowing modern logistic and climaxing in the Russell-Whitehead book."[54] Haack was even led to believe that Peirce both was and was not a logicist. For her, logicism is a two fold doctrine: Logicism is a formal thesis

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[52] See Beverly Kent's detailed analysis of the study Peirce made in order to situate the proper place of logic in his classification scheme and its relation to the other sciences in B. KENT, *LCS*, pp. 56-79.

[53] Hartshorne and Weiss, editors of volume three of the *Collected Papers* supplied a footnote on 3.43-44 saying that Peirce's definition of cardinals has a closeness to that of the *Principia Mathematica.* See also P. WEISS, "Charles Sanders Peirce," *Dictionary of American Biography*, D. Malone (ed.), vol. 14, Scribner's Sons and Co. New York 1934, pp. 398-403 and C. EISELE, *Studies in the Scientific and Mathematical Philosophy of Charles S. Peirce*, Mouton Publishers, Hague 1979, p. 12.

[54] J. BUCHLER, *Charles Peirce's Empiricism*, Hardcourt Press, New York 1939, p. 224.

(Mathematics, at least arithmetic, is reducible to logic) and an epistemological thesis (Logic is more basic, and epistemically foundational for mathematics). She claims that Peirce deliberately rejected epistemological logicism and showed compassion with the formal thesis. She arrived at this conclusion due in part to Peirce's use of the term 'logic' as a mathematical formulation of necessary reasoning and 'logic' as the theory of reasoning.[55] Houser on the other hand disagree. He doubts that Peirce was a formal logicist and sustains that if the reducibility of a part of mathematics to logic is accepted, that logic would be epistemically prior to mathematics, or which would be the same, that it is not possible to disentangle both faces of logicism.[56]

Nubiola detected that "scholars who seek to classify Peirce under the label of logicism find it extremely difficult to accommodate his exact words."[57] In a reconstruction of Peirce's statements Nubiola clarifies: "'The mathematician draws consequences, the logician studies and classifies the conditions under which these consequences are drawn. Far from mathematics being a branch of logic, it is almost(...) the

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[55] Cf. S. HAACK, "Peirce and Logicism: Notes Towards an Exposition," *TCSPS* 29 (1993): 35-56.

[56] Cf. N. HOUSER, "On 'Peirce and Logicism.' A Response to Haack," *TCSPS* 29 (1993): 57-67.

[57] J. NUBIOLA, "C. S. Peirce: Pragmatism and Logicism," *Philosophia Scientiae*, Edition Archives Centre d'Etudes et de Recherche Henri Poincaré, Nancy (forthcoming).

only science which stands in need of no aid from a science of logic' (*CP* 2.81, c. 1902). 'Mathematics has no need of any appeal to logic. Just as it is not necessary, in order to talk, to understand the theory of the formation of vowel sounds, in order to reason, to be in possession of the theory of reasoning' (*CP* 4.242, c. 1902). 'The aim of both sciences are different: while the function of logic is the analysis and theory of reasoning, the function of mathematics is the practice of it' (*CP* 4.134, 1893)." Then he offers a conclusion: "Peirce did not seek to reduce mathematics to logic. Reductionism was not an aim of Peirce's conception of scientific inquiry, nor did he think that mathematics need appeal to logic to ascertain the validity of its reasoning, 'for nothing can be more evident than its own unaided reasonings' (*CP* 7.524, undated)."[58]

Peirce already rejected any type of logicism, when he reacted to Dedekind's position in 1902. Richard Dedekind, one of the leading logico-mathematicians in Peirce's time, spearheaded the logicist's program of downgrading mathematics into a division of logic. Peirce vigorously countered that the two disciplines have widely divergent aims. "Mathematics is not Logic for the reason that the mathematician deals exclusively with assumptions for whose truth he in no wise makes himself responsible, while logic deals with positive truth. The mathematician's interest in reasoning is to get at the conclusion in the speediest way consistent with certainty. The logician, on the contrary, does

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[58] J. NUBIOLA, "C. S. Peirce: Pragmatism and Logicism."

not care particularly what the conclusion is. His interest lies in picking the reasoning to pieces and discovering the principles upon which its leading to truth depends. As far as necessary inference is concerned, the mathematician and the logician meet upon common highway. But they face in contrary directions."[59] To Peirce, mathematics is define as the science that *draws* necessary conclusions and logic is define as the science of *drawing* necessary conclusions, taken from his father Benjamin, then leading Harvard mathematician.[60]

2.3.2. Natural Classification of the Sciences

In his application letter for a grant to the Carnegie Institution, Peirce stated clearly the characteristics of his projected classification of sciences:

> "This will be a natural classification, not of possible sciences, but of sciences as they exist today; not of sciences in the sense of 'systematized knowledge,' but of branches of endeavor to ascertain truth. I shall not undertake that there is no other natural classification of the sciences than that which I give; (...) Every unitary classification has an idea or purpose, and is a natural classification insofar as the same purpose is determinative in the objects classified. The purpose of this classification is nearly the same as that of Comte, namely, so to arrange a catalogue of the

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[59] C. S. PEIRCE, *MS* 459, 1903.

[60] C. S. PEIRCE, *CP* 4.239, 1902. Italics his. See also C. S. PEIRCE, *CP* 4.373, 4.533 and 4.614.

> sciences, as to exhibit the most important of the logical dependence among them. In fact, my classification is simply an attempt to improve upon that of Comte; first by looking less a t what has been the course of scientific history, and more at what it would have been if the theoretically best methods have been pursued; secondly, by supplying the shocking omissions which Comte's rage against nonsense led him to commit; thirdly, by carrying down the subdivisions as far as my knowledge enables me to do. It was necessary for me to determine what I should call one science. For this purpose I have united under one science studies such as the same man, in the present of science might very well pursue. I have been guided in determining this by noting how scientists associate themselves into societies, and what contributions are commonly admitted into one journal; being on guard against survival of traditions from bygone states of science."[61]

Peirce's vision of his classification of the sciences is anchored on his conception of science analyzed before. It is also good to note that he stresses the importance of community in scientific inquiry. A man who has a scientific apprehension but undertakes his inquiry by himself nor is involved in any scientific activity is not a working scientist. His notion of natural classification is from the nature of things limited to natural objects. He has in mind from his examination of the previous classification of sciences that "the vast majority of classification of the sciences are classification of *possible* sciences, which are not natural objects. Science as

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[61] C. S. PEIRCE, *L* 75, 1902.

a natural object is the actual living occupation of the actual group of living men" (*MS* 1334). Peirce suggests that the classification of science must be made "according to the peculiar means of observation they employ" (*CP* 1.101). After acknowledging that he adapted the general idea of the classification and supported the view of each science as a historical development made by Comte, Peirce disagrees with Comte's classification of "abstract sciences in a ladder, with the idea that each derives its principles from the more abstract science that occupies the rung above" (*MS* 1334, 1905). Nubiola says it is "because the image of an epistemic ladder of sciences suggested reductionalistic tendencies similar to those of the twentieth-century positivist philosophy of science."[62]

Peirce adopts for his classification of sciences the categories of Agassiz for it has a merit of being the outcome of deep study, and it does not involve unwarranted accuracy of statement.[63] "The definitions of Agassiz will, at least, do us the service of directing our attention to the supreme importance of bearing in mind the final cause of objects in finding out their own natural classifications" (*CP* 1.231, 1902). The first division of science made in terms of the basic purpose being served yields its *branches*, a modification of a basic purpose will produce *sub-branches*. Since all sciences

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[62] J. NUBIOLA, "The Branching of Science According to C. S. Peirce," *Peirce Gopher*, Lubbock 1995.

[63] Agassiz, in his *Essay on Classification* divides the animal kingdom into branches, classes, orders, family, genera, and species.

rest in observations of many men (*N* 3.228), all knowledge whatever comes from observation. But different sciences are observational in such radically different ways that the kind of information derived from observation of one department of science could not possibly afford the information required of observation by another branch. He cites the example of the difference between natural history and mathematics. Groups based on this considerations are called *classes*, and modification of the same nature yields to *subclasses*. If two departments of science belong to one class, the first one derives from the second certain special facts for further generalization, while supplying the second with principles which the latter adopts ready-made. The first one will rank higher then than the second by virtue of its greater generality; but the second will be richer and more varied than the first. Peirce calls the groups based on this considerations as *orders*; or, if based on the modifications of the same sort of idea, *sub-orders*. A given science with a special name, a special journal, a special society, studying one group of facts, forms a *family*. A subdivision of it on the same principles but taken more minutely is a *subfamily*. Peirce wants to carry his classification only this far since definitions in terms of *genera* and *species* require almost hair-splitting distinctions. With regards to the scheme, he remarks: "I have not first fixed my definitions of *branch*, *class*, *order* and *family*, and then adapted the classifications to those definitions, but on the contrary, the classification was first entirely formed (except that the categories of sub-branches, subclasses, and suborders had in some cases, not been interposed, and in others have been confounded with classes above them.) before any idea of employing the terms, *branch*, *class*, *order* and *family* entered

my head, and it was not until this was done that the first appropriateness of these terms struck me."[64]

Moving now to a more specific classification, Peirce divides science into two main branches: "Theoretical, whose purpose is simply and solely knowledge of God's truth; and Practical, for the uses of life" (*CP* 1.239, 1902). He then went on to say that theoretical science is divided into two sub-branches: the science of discovery, which seek only to learn new truth focusing their concern with the discovery for its own sake; and the science of review. In the classification of 1903, contained in the "Syllabus of Certain Topics of Logic" he says that "All science is either, A. Science of Discovery; B. Science of Review; or C. Practical Science." By "science of review" Peirce means the business of those who occupy themselves with arranging the results of discovery, beginning with digests, and to endeavor to form a philosophy of science. Such is the nature of Humboldt's *Cosmos*, of Comte's *Philosophie positive*, and of Spencer's *Synthetic Philosophy*. The classification of the sciences belongs to this department" (*CP* 1.182, 1903). The Practical sciences seek to satisfy human desires. They take the systematic statement of discovery, supplement it if ever necessary and make it available for application to areas in which it is expected to have some utility.

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[64] C. S. PEIRCE, *CP* 1.238. See also *L* 75.

In sciences of discovery one of the two main branches of the theoretical science according to the earlier classification, "is either, I. Mathematics; II. Philosophy; or III. Idioscopy" (*CP* 1.183). All the three branches of science of discovery rest upon "observation, but being observational in very different senses" (*CP* 1.239). Mathematics may be divided into a. the Mathematics of Logic; b. the Mathematics of Discrete Series; c. the Mathematics of Continua and Pseudo-continua. I shall not carry this division further. Branch b has recourse to branch a, and branch c to branch b. Philosophy is divided into a. Phenomenology; b. Normative Science; c. Metaphysics. Phenomenology ascertains and studies the kinds of elements universally present in the phenomenon; by the phenomenon it means, whatever is present at any time to the mind in any way. Normative science distinguishes what ought to be from what ought not to be, and makes many other divisions and arrangements subservient to its primary dualistic distinction. Metaphysics seeks to give an account of the universe of mind and matter. Normative science rests largely on phenomenology and on mathematics; metaphysics on phenomenology and on normative science.[65]

This is how Peirce's classification scheme will look like as reconstructed by previous scholars:[66]

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[65] C. S. PEIRCE, *CP* 1.181-183, 1.185-186

[66] Cf. T. GOUDGE, *The Thought of C. S. Peirce*, p. 49; R. ROBIN, *Annotated Catalogue of the Papers of Charles S. Peirce*, pp. xvf; C. EISELE, *Historical Perspectives on Peirce's Logic of Science: A*

A. Theoretical Science

I. Heuretic Sciences[67]

i. Mathematics

a. Mathematics of Logic

b. Mathematics of Discrete Series

c. Mathematics of Continua or Pseudo-Continua

ii. Philosophy or Cenoscopy

a. Phenomenology

b. Normative Science

Esthetics

Ethics

Logic

Speculative Grammar

Critic

Methodeutic

c. Metaphysics

Ontology

History of Science, (1985), p. 125f.; B. KENT, *LCS*, pp. 134f.; D. ANDERSON, *SSPCP*, pp. 31f.; J. NUBIOLA, "Ramificación de los Saberes según C. S. Peirce," *Anuario Filosófico*, 30 (1997) forthcoming.. Note also that the reconstructions of these scholars have some minute variations.

[67] In other parts he calls it Science of Research or Science of Discovery.

Religious Metaphysics

Physical Metaphysics

iii. Idioscopy

a. Psychical Science or Psychognosy

Nomological or General Psychology

Classificatory

Linguistics

Critics

Ethnology

Descriptive

Biography

History

Archeology

b. Physical Science or Physiognosy

Nomological or General Physics

Dynamics

Elaterics and Thermotics

Optics and Electrics

Classificatory

Crystallography

Chemistry

Biology

Descriptive

Astronomy

Geognosy

2. Science of Review

e.g. Humboldt's *Cosmos*

Comte's *Philosophie positive*

Spencer's *Synthetic Philosophy*

also, Classification of the Sciences

B. Practical Science

e.g. pedagogics, gold-beating, book-binding

ink making, etc.

2.3.2.1. *Mathematics, First sciences*

Peirce is well versed in History of Science and he knows for sure that Plato called the lessons before any other science as *mathema*. In the ancient age, mathematics comes first in the process of learning. "Mathematics is engaged solely in tracing out consequences of hypotheses. As such, she never at all considers whether or not anything be existentially true or not" (*CP* 1.247). It is the freedom that mathematics enjoys. Mathematics studies what is and what is not logically possible, without making itself responsible for its actual existence (*CP* 1.184). It does not undertake to ascertain any material truths whatsoever, but merely postulates hypotheses and then traces out other necessary consequences. A mathematician's only interest in a theoretical step is that it should be extremely convenient. It seeks to discover all possible facts of implications. It is observational in the sense that it makes

imaginary constructions according to the sets of abstract rules, and then observes these imaginary objects with the view in finding in them relation of parts not specified in the precepts of construction. As a heuretic science, mathematics is engaged in discovery. Discovery occurs through observation of geometrical diagrams or array of algebraic symbols representing the formal elements of the described universe to the extent that there are regularities.[68] For Peirce, all other sciences rely on mathematics to the degree that it was the model of reasoning uncompelled by other factors. "There is no science whatever to which is not attached an application of mathematics" (*CP* 1.245). Mathematics is at the apex of the sciences. Mathematics presupposes none of the other sciences but is presupposed by all of the sciences. So we can say that no other science is a universal as mathematics since no other science applied to pure mathematics. Peirce also thought that it was a mistake to view mathematics as a wholly quantitative study since that would limit it to strictly linear arrangements. The relations of cause and effect reason and consequence, are of this kind. Peirce affirms of their importance but reminds us that mathematics extends to the theory of all groups —the whole of any system of relationship, regarded in a certain abstract way (*MS* 778, c. 1905).

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[68] Cf. B. KENT, *LCS*, pp. 142-145. Anderson traces more the role of mathematics in the generation of the categories and for laying the groundwork of Peirce philosophical synechism. See D. ANDERSON, *SSPCP*, pp. 32-35.

Besides, Peirce considers mathematics to be the first science because mathematical relations do not change. It is something which we ought to have certainty. Take for example the sum of the angles of a triangle is always 180°. More than or less than that sum we know with certainty that it can be anything but not a triangle. Imagine you an apple as round as a ball. To one it seems to be round, while his friend says it is somewhat flat on top, and an argument ensues.. We can never be certain to what our senses perceive but we can be totally sure that a perfect circle has 360°. It could be a case of an ideal that is hard to find in the real, but it is easily conceived in the mind. Peirce knows that the abstractness of mathematics is what made Plato and Aristotle classify mathematics with philosophy on account of its abstractness in their classifications.

2.3.2.2 *Philosophy or Cenoscopy*

The second heuretic science is Philosophy or cenoscopy. Peirce has the penchant of using Bentham's term for philosophy —cenoscopy— to emphasize that it is "the watch tower of the common" (*CP* 1.241 n.1, *MS* 778, 1909). Cenoscopy is a science that seeks truths concerning everyday familiar experience and the world that surrounds it. Philosophy deals with ordinary facts of man's everyday existence open to all at any time to observe. Philosophy to Peirce is the theoretical science of discovery. A scientific discipline that deals with facts, therefore, it is also a positive science. "Philosophy is positive science, in the sense of discovering what really is true; but it limits itself to such truth as can be inferred from common experience" (*CP* 1.184). It

differs from other positive sciences such as physics and chemistry because the facts that it deals with do not require special training or equipment in order to be observed. "Philosophy deals with observations such as those that come within the range of every man's normal experience, and for the most part in every waking hour of his life (...). These observations escapes the untrained eye precisely because they permeate our whole lives, just as a man who never takes his blue spectacles soon ceases to see the blue tinge" (*CP* 1.241). Furthermore, Peirce makes a distinction between positive philosophy and synthetic philosophy. The latter, he says, is the head of the science of review for it collates and organizes the discoveries of various special science that cannot be established by a particular one. This type of philosophy, he says, was pursued already by Comte, Spencer, Fiske, Wundt and many others, a venture that made philosophy depend upon special sciences. Kent's study sums it this way: "the cenoscopic study with which Peirce was concerned gets its principles from mathematics, but is distinguished from it in the following principle: it is concerned with discovering real truth; and experience provides it with premises, not merely suggestions. It is also distinguished from the special science: it is not limited to the reality of actual existence but includes the reality of potential being; and its premises are not special facts that requires special instruments or skills to discover, but are based on the universal experience accessible to all.[69]

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[69] B. KENT, *LCS*, pp. 145f

Reck for his part detected an inconsistency. Peirce remarks, "(...) philosophy, whose business it is to find out all that can be found out from those universal experiences which confront every man in every waking hour of his life, must necessarily have its application in every other science. For be this science of philosophy that is founded on those universal phenomena as small as you please, as long as it amounts to anything at all, it is evident that every special science ought to take that little into account before it begins to work with its microscope, or telescope, or whatever special means of ascertaining truth it may be provided with" (*CP* 1.246). To Reck this can be an inconsistency unless his claim that philosophy applies everywhere excludes pure mathematics.[70]

Peirce subdivides philosophy using his universal categories into: *phenomenology* or *phaneroscopy*, the Firstness of philosophy, whose tasks is to take an inventory of the phenomena; *normative science*, the Secondness of philosophy whose task is evaluation (more precisely, the theory of the evaluation of phenomena); and *metaphysics*, the Thirdness of philosophy, whose task is the comprehension of the phenomena. It can be characterized also as a division in an order that moves from less to more specialized.

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[70] Cf. A. RECK, "Peirce's Conception of Philosophy and its Place within His Classification of Science," *From Time and Chance to Consciousness: Studies in the Metaphysics of Charles S. Peirce*, E. Moore-R. Robin (eds.), Berg ,Oxford 1994, pp. 115-131.

2.3.2.2.1. Phenomenology or Phaneroscopy

"(...) Phenomenology, or the Doctrine of Categories, whose business it is to unravel the tangled skein [of] all that in any sense appears and wind it into distinct forms; or in other words, to make the ultimate analysis of all experiences the first task to which philosophy has to apply itself. It is the most difficult, perhaps the most difficult, of its tasks, demanding very peculiar powers of thought, the ability to seize clouds, vast and intangible, to set them in orderly array, to put them through their exercises. The mere reading of this sort of philosophy, the mere understanding of it, is not easy. Anything like a just appreciation of it has not been performed by many of those who have written books. Original work in this department, if it is to be real and hitherto unformulated truth, is —not to speak of whether it is difficult or not— one of those functions of growth which every man, perhaps, in some fashion exercises once, some even twice, but which it would be next to a miracle to perform a third time (...)."[71]

Peirce admonishes that phenomenology is not an easy endeavor because of the difficulties in determining the material components of the phaneron. "The word fanerÕn is next to the simplest expression in Greek for *manifest*. (...) There can be no question that fanerÕs means primarily *brought to light, open to public inspection throughout*. (...) I desire to have the privilege of creating an English word, *phaneron*, to denote whatever is through its entirety open to

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[71] C. S. PEIRCE, *CP* 1.280, c. 1902.

assured observation" (*MS* 337, 1904).[72] The inseparable elements of the phaneron are not exhibited to the investigators. Add to it the complete neglect of the dynamic elements that have been put forward as a mere possibility. This might have led Murphey to conclude that Peirce did not really pursue a serious study of phenomenology. His introduction to phenomenology was simply an optional way to introduce the categories in philosophy anterior to their appearance in logic.[73] Apel, on the other hand, disagrees arguing that Peirce introduces phenomenology for the first time in his "Minute Logic" in 1902 and called it Phaneroscopy after 1904 and on. But it was postulated in his classification of science as *prima philosophia*. Peirce presented the term phenomenology as a title for something which for a long time already had a place in his philosophy, namely the doctrine of categories. It was not simply introduced as a new name, but as the conceptual result of methodological reflection.[74] Anderson for his part says, "Given the history of Peirce's discussion of categories, there appears to be an element of

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[72] For a more detailed discussion of Peirce's definition of phaneron see A. DE TIENNE "Peirce's Definitions of the Phaneron," *Charles S. Peirce and the Philosophy of Science*, E. Moore (ed.), Alabama University Press, Tuscaloosa 1993, pp. 279-288.

[73] Cf. M. MURPHEY, *DPP*, pp. 366f.

[74] Cf. K. APEL, *Charles S. Peirce: From Pragmatism to Pragmaticism*, J. Krois (translator), Humanities Press, New Jersey 1995, pp. 111-114. (italics his.)

truth in this [Murphey's] interpretation. However, it does not seem to be the whole truth; Peirce displays no insincerity in his development of phenomenology. He did, after all, take seriously the architectonic character of philosophy, and it therefore made sense for him to seek to fill voids in the structure with appropriate elements."[75]

How does one therefore, undergo the study of this first positive science, that cannot seek principles from any other positive science? Peirce suggests that as students of phenomenology, we simply have to open our mental eyes and observe well at the phenomenon and identify what are the characteristics that are never wanting in it, whether that phenomenon be something that outward experience forces upon our attention, or whether it be the wildest of dreams, or whether it be most abstract and general of the conclusions of science. In short, its ways of knowing is intuitive. Then he recommends three faculties how to pursue their studies pragmatically. The first and principal faculty that we need is the artist's ability of seeing what stares one in the face, without the alterations and interpretations that experience has taught. That is how artists see the apparent colors of nature as they appear to the sense of sight. According to Peirce, this observational keenness of the artist is significant in the study of phenomenology. In the second faculty, we must aim to equip ourselves with an earnest discrimination that recognizes the particular feature that we are studying underneath all its

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[75] D. ANDERSON, *SSPCP*, p. 37.

disguises. The third faculty that Peirce suggests is that we must have a generalizing capacity (like those of the mathematician who produces the abstract formula) to assimilate the very gist of the feature under examination purified from all irrelevant adornments.[76]

> "Phaneroscopy is the description of the phaneron; and by the phaneron I mean the collective total of all that is in any way or in any sense present to the mind, quite regardless of whether it corresponds to any real thing or not. If you ask present when, and to whose mind, I reply that I leave these questions unanswered, never having entertained a doubt that those features of the phaneron that I have found in my mind are present at all times and to all minds. So far as I have developed this science of phaneroscopy, it is occupied with the formal elements of the phaneron. I know that there is another series of elements imperfectly represented by Hegel's Categories. But I have been unable to give any satisfactory account of them."[77]

According to Kent, Peirce was referring to "any mind" because he thought that any particular consciousness is substantially any other; "in any way" or in "any sense whatever" allows the inclusion of memory and habitual cognition, and does not limit reference to an instantaneous

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[76] Cf. C. S. PEIRCE, *CP* 5.41-42, 1903.

[77] C. S. PEIRCE, *MS* 1334, 1905. Also *CP* 1.284.

state of consciousness.[78] Potter adds that for Peirce, one might say that phenomenology simply observes and annotates the contents of experience. Phenomenology catalogues what appears without passing any judgment upon what it observes. It says neither "true" or "false" nor "good" or "bad" about the phenomena.[79]

Hence, phenomenology or phaneroscopy, is the science that investigates and describes the phaneron, by which Peirce means the collective total of all that is ever present to mind in any sense whatever, regardless of whether or not there is any corresponding reality. A careful study through logical analysis and direct inspection of the indecomposable elements of the phaneron led Peirce to the conclusion that there are at least two different, though not unrelated , orders of categories.[80] The first order of categories is sometimes referred to as material, or categories consisting of phases of evolution (*CP* 5.38, 1903). These are the particular categories which register qualitative distinctions between the various elements of thought. They form a series or a set of series, only one of each series being present, or at least predominant, in any one phenomenon (*CP* 5.43, 1903). They permit the classification of things according to their matter: wooden things, plastic

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[78] B. KENT, *LCS*, p. 146.

[79] V. POTTER, *Charles S. Peirce on Norms and Ideals*, University of Massachusetts Press, Worcester 1967, p. 8. *CSPNI* from here on.

[80] Cf. C. S. PEIRCE, *CP* 1.288, c.1906

things, ivory things etc. (*CP* 8.213, c.1905). Peirce identifies the categories of Hegel's *Encyclopaedia* to belong to this order. The second order of categories points the universal categories represented by Hegel's three grades of thinking. All of the universal categories are demonstrated in every phenomenon, although one might predominate in one aspect of the phenomenon. This series permits the classification of structure of elements in thought and consciousness by the differences of quantitative complexity which according to Peirce is very important for almost all intents and purposes.[81] For the purpose of natural classification, distinctions according to forms or structure of elements come first over distinctions according to their matter. "Form is something that mind can assimilate and comprehend, while matter is always foreign to it, a recognizable but in comprehensible something" (*MS* 499, 1907).

Peirce arrives at the conclusion in his investigation in phenomenology that there are three universal categories. All these three are invariably present, a pure idea of any one, absolutely distinct from the others, absolutely irreducible to one another yet interdependent, and directly observable in elements whatever at any time before the mind in any way. These categories may be termed *Firstness*, *Secondness*, and *Thirdness*. They are found in every department of thought and it seems likely that Peirce first discovered them in his logical studies (On a New List of Categories, 1867: qualities— the

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[81] Cf. C. S. PEIRCE, *CP* 8.213, c.1905.

non-relative characters; relations— dyadic relations; and representations— plural relations). Kent says however, that their phenomenological version is rationally anterior. The elements are not to be found as already separated in experience; hence the *a priori* investigation into the indecomposable elements anticipated in the phaneron is previous to the phenomenological studies. If phenomenology is to have a sound foundation, an introductory study requiring exact reasoning must precede the task of observation. Mathematical logic can uncover what is possible for observation to reveal and so reduce the number of surprises observation must produce; such *a priori* investigation eliminates a number of alternatives at the outset. Peirce alluded in a letter to Lady Welby that Russell affirms that there is a *fourthness* (*SS* 43). In "Guess to the Riddle," Peirce proved it that all systems of more than three elements are reducible to compounds of triads.[82] Peirce's mathematical investigation confirmed that there are three irreducible categories, no more, no less. [83]

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[82] Cf. C. S. PEIRCE, *CP* 1.363-368, c. 1890. Russell's affirmation may have influenced Schneider who also held that there is a fourth category in Peirce, which he labeled *fourthness,* very much related to the *summum bonum,* which he understood as the highest or most enduring form of satisfaction. Cf. H. SCHNEIDER, "Fourthness," *Studies in the Philosophy of Charles Sanders Peirce*, P. Wiener-F. Young (eds.), Harvard University Press, Cambridge 1952, pp. 209-214.

[83] Cf. B. KENT, *LCS*, pp. 125f, 146f.

"*Firstness* is the mode of being of that which is such as it is, positively and without reference to anything else. *Secondness* is the mode of being of that which is such as it is, with respect to a second but regardless of any third. *Thirdness* is the mode of being that which is such as it is, in bringing a second and third into relation to each other. I call these ideas the *cynophythagorean* categories" (*SS*, 24). In *The Century Dictionary Supplement*, Peirce defines *cynophythagorean* as "of or pertaining to a modern doctrine which resembles Phythagoreanism in accepting universal categories that are related to and are named after numbers" (*CDS*, pp. 217).

The typical ideas of Firstness are qualities of feeling, or mere appearances. The quality itself independently of its being perceived or remembered, is an example, by which Peirce does not mean we are to imagine that we *do not* perceive or remember it, but we are to drop out of account that which may be attached to it in perceiving or in remembering, which does not belong to quality(*SS*, 24). Peirce associates Firstness with freedom, feeling, and independence. He often give examples of it in experiential terms: "Imagine me to make and in slumberous condition to have a vague, unobjectified, still less unsubjectified, sense of redness, or of salt taste, or of an ache, or of a grief or joy, or of a prolonged musical note. That would be, as nearly as possible, a purely monadic state of feeling" (*CP* 1.303). Feeling that possesses a positive character yet is devoid of all relation and therefore lacking all vividness is not really feeling any longer, but simply a sense of quality. Comtemplating something in a way that focuses attention on the whole while completely ignoring the parts results in an approximation. It is close enough to see that, for

the instant, there is nothing in consciousness but a quality of feeling. A quality of feeling is not an abstraction, because abstraction involves something being true of some other thing. Neither is it individual, for individuality involves contrast. Thus we can say that Firstness is pure possibility, what is without relation, what is merely possible, what is a suchness, and what is associated primarily with feeling. But it is not possible to experience pure uncontaminated Firstness.[84]

Secondness is experienced as otherness. It is the category of experience. "The type of Secondness is the experience of effort, prescinded from the idea of a purpose. It may be said that there is no such experience, that a purpose is always in view as long as the effort is cognized. This may be open to doubt; for in sustained effort we soon let the purpose drop out of view" (*SS*, 25). Secondness is the element of the rough-and-tumble which this world renders most prominent. We talk of *hard* facts. That hardness, that compulsiveness of experience, is Secondness. To illustrate Secondness Peirce describes "a door is slightly ajar, and you try to open it. Something prevents it, you experience an unseen silent resistance." He continues, "so you put your shoulder against it, and experience a sense of *effort* and a sense of resistance." (CP 1.320. Italics mine). The existence of the word effort here is a sufficient proof that people think they have such idea. The experience of effort cannot exist without experience of

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[84] Cfs. V. POTTER, *CSPNI*, p. 13; B. KENT, *LCS*, pp. 126f; D. ANDERSON, *SSPCP*, p. 39

resistance. For effort is only effort by virtue of being opposed. It is good to note that Peirce is talking here about experience and not of the feeling of effort. Secondness is the most easily grasped category. It is actuality, embodied in the experience of effort, of resistance, of struggle, or of opposition. Peirce explains this category further to Lady Welby in this manner:

> Imagine yourself to be seated alone at night in the basket of a balloon, far above earth, calmly enjoying the absolute calm and stillness. Suddenly the piercing shriek of a steam whistle breaks upon you, and continues for a good while. (The impression of stillness was an idea of Firstness, a quality of feeling.) The piercing whistle does not allow you to think or do anything but suffer. So that too absolutely simple (another Firstness). But the breaking of the silence by the noise was an experience. the person in his inertness identifies himself with the precedent state of feeling, and the new feeling which comes in spite of an ego and non-ego. That consciousness of the action of a new feeling in destroying the old feeling is what I call experience. Experience generally is what the course of life has *compelled* me to think (...).[85]

Thirdness is the category of mediation and synthesis, of articulating the relation or connection of a one or a two. Thirdness is the category that characterizes the mode of being of laws governing future events. The phaneron is observed to be intelligible, it is subject to law, which means it can be represented (*CP* 8.268, 1903). Thirdness manifests itself in

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[85] C. S. PEIRCE-V. WELBY, *SS*, 26.

experience through predictions. Predictions can be based on these laws to which actual events still in the womb of the future will conform to a marked extent, if not perfectly. In other words, if a prediction has a decided tendency to be confirmed it must be that future events have a tendency to conform to a general rule. For Peirce, rules and laws are real and they are Thirdness.

> Analyze for instance the relation involved in 'A gives B to C'. Now what is giving? It does not consist in A's putting B away from him and C's subsequently taking B up. It is not necessary that any material transfer should take place. It consists in A's making C the possessor according to *Law*. There must be some kind of law before there can be any kind of giving, —be it but the law of the strongest. But now suppose that giving *did* consist merely in A's laying down the B which C subsequently picks up. That would be a degenerate form of Thirdness in which Thirdness is externally appended. In A's putting away B, there is no Thirdness. In C's taking B, there is no Thirdness. But if you say that these two acts constitute a single operation a single operation by virtue of the identity of B, you transcend the mere brute fact, you introduce a mental element.[86]

Peirce wants to convey here that Thirdness consists in the fact that future facts of Secondness will take place on a determinate general character. Of course there is always the margin of error, or the common expression "in every rule there's an exemption." But it is clear that Thirdness is

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[86] C. S. PEIRCE-V. WELBY, *SS*, 29f.

characterized by its mediating role. His early characterization of Thirdness is "Representation" (*CP* 1.555, 1867). For a law, governing events mediate between pure possibility (Firstness) and pure actuality (Secondness). In other words, Thirdness to Peirce is the category of thought that mediates between the Firstness of feeling and the Secondness of reaction. One obvious character of Thirdness is that it is always and exclusively a triadic relation. Besides, Thirdness has two degenerate forms because it involves the ideas of both Firstness and Secondness.[87]

In Potter's analysis, Peirce also applied the universal categories to philosophy in general and to normative science in particular. So the tripartite division of philosophy corresponds to the universal categories: Phenomenology which simply meditates the universal phenomenon is the Firstness of philosophy since it merely contemplates without emitting any judgment; it merely observes at and records phenomena as they appear in themselves regardless of anything else; Normative science, which investigates the universal and necessary laws of the relation of phenomena to ends, is the Secondness of philosophy because it investigates the dyadic relation of phenomena to ends and so provides one the means to form a basis for judging; and Metaphysics, which

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[87] In his letter to Lady Welby he pursues the triadic relation of Thirdness to be of nature of a general sign, developing his theory of signs. See *SS*, pp. 30-36. Potter for his part says that the category of Thirdness led Peirce to a form of objective idealism which he calls synechism.

ventures to comprehend the reality of phenomena, is the Thirdness of philosophy because it mediates between phenomenology and normative science, between phenomena in themselves and their relation to ends, by the study of regularity, law of efficient reasonableness therein involved.[88]

2.3.2.2.2. Normative Sciences

Peirce's interest in the normative sciences goes back to his boyhood. He recalls vividly how he picked up Whately's *Elements of Logic*, his brother's textbook in Logic and worked right through it on his own. Logic, nevertheless, was not the only normative science to which he early applied to himself. With his friend, Horatio Paine, he studied Schiller's *Aesthetische Briefe* during his Harvard undergraduate years. He also tells us that he had always been interested in ethical systems (*CP* 2.198, c. 1902). Yet Peirce tackles his conception of normative science in a relatively short time. His discussion of the normative sciences came at a time of life when he was too old and too feeble to explore systematically more than few aspects of the subject. So his writings on the normative sciences comprise only a relatively few pages in comparison to his vast philosophical output.

"I wonder how many of those who make use of this term see any particular need of the word *normative*" (*CP* 1.281, c.1902). The word normative was invented in the school of

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[88] Cf. V. POTTER, *CSPNI*, pp. 18f.

Schleiermacher (*CP* 1.575, c.1902). Normative sciences are normally confused with practical sciences. Properly speaking, they are pure sciences, although practical studies are joined to them, so that in part they are practical sciences. The normative science proper is not a practical science but a study in the pure interest of theory. "The conception of a family of sciences of their description is due to Herbart, together with the word *normative*" (*MS* 1334, 1905. Italics his).

What does Peirce precisely mean by normative science? Usually, "normative" is understood as something of, or pertaining to a norm. A norm is a rule, a standard, a pattern or an authoritative standard. A normative statement is distinguished from a factual or descriptive statement due to the normative predicate it contains which the latter does not. A normative predicate is one which does not describe any observable property of either things or events, but expresses a assessment of them. For example the statement, "Gonzalo goes to the library regularly," is a statement of fact which tells us something about Gonzalo's weekday habit. While in the statement, "Gonzalo ought to go to the library regularly," the term "ought" connotes functions in an ethical way, and the action prescribed by the statement in which it occurs belongs to practice. This is non-factual or normative statement. Accordingly, there is a usage of normative science according to which normative science means, "the science which is

concerned with the way the people ought to act, with what views they ought to adopt."[89]

In Peirce, normative science does not necessarily inquire how we are to act in order to pursue a purpose, or to what our efforts ought to be directed, but simply considers what conditions, whether voluntarily or involuntarily fulfilled, have to be satisfied. It is that science which sets up norms, rules, and standards. In this case, the "ought" is hypothetical, not categorical or moral. "Ought" excludes compulsion, coercion, and determinism. This is ordinarily expressed by saying that, if one wants to reason correctly or act properly or judge that which is beautiful, then one ought to apply such and such rules. But if one chooses not to reason correctly or act properly or judge the beautiful, that is one's own affair. It is always possible to act contrary to the "ought" for "ought" rather implies ideals, ends, and purposes which attract and guides deliberate conduct (*CP* 1.575 c. 1902).

Normative science is the study of what ought to be (*CP* 1.281, c. 1902). It set up norms or rules which need not but ought to be followed (*CP* 2.156, c. 1902). Since it deals with "ought," that is with deliberate conduct, and since it allows one to make value judgments concerning such conduct, one might be tempted to look upon it as an art or practical

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[89] R. ROBIN, "Peirce's Doctrine of Normative Sciences," *Studies in the Philosophy of Charles Sanders Peirce*, Second Series, Moore, E.-Robin, R. (eds.), University of Massachusetts Press, Cambridge 1964, p. 277.

science. That is why Peirce insists again and again that normative science is theoretical, really, "the very most purely theoretical of purely theoretical sciences" (*CP* 1.282, c. 1902)[90] Naturally, Peirce sees and categorically says that normative science is closely related to arts and that there are "practical sciences of reasoning and investigation, of the conduct of life, and of the production of the work of arts" (*CP* 5.125, 1903) which coincides to the normative sciences. Normative science looks primarily to understanding of certain sets of conditions. Its business is analysis or definition (*CP* 1.575, c. 1902).

Furthermore, Peirce feels obliged to emphasize that normative science is not a special science. It is a subdivision of philosophy and as such relies on the data available to anyone at any time by reflection upon experience. The same experience upon which philosophy in general is founded.[91] Peirce also looks upon normative science as positive science. As an inquiry, it seeks for positive knowledge expressible in categorical propositions.

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[90] See also C. S. PEIRCE, *CP* 1.575, c. 1902 and *CP* 5.125, 1903.

[91] Robin and Potter detected that "Minute Logic" written shortly before the 1903 Harvard Lectures, Peirce seems to have held different view. Cfs. R. ROBIN, "Peirce's Doctrine of Normative Sciences," *Studies in the Philosophy of Charles Sanders Peirce*, pp. 271-288 and V. POTTER, *CSPNI*, pp. 207f.

> By a *positive* science I mean an inquiry which seeks for positive knowledge; that is, for such knowledge as may be conveniently expressed in a *categorical proposition*. Logic and the other normative sciences, although they ask, not what *is* but what *ought to be*, nevertheless are positives sciences since it is by asserting positive, categorical truth that they are able to show that what they call good really is so; and the right reason, right effort, and right being, of which they treat, derive that character from positive categorical fact.[92]

Peirce explicates in the Harvard Lectures of 1903 that normative science is "the science which investigates the universal and the necessary laws of the relation of phenomena to *Ends* (...)"(*CP* 5.121, 1903). As a positive science, normative science deals with facts, and facts belong to the category of Secondness. To understand it better, one must look at the proper and peculiar appreciations of the facts which relate to the conformity of phenomena to ends, themselves not immanent in the phenomena being examined. In other words, normative science studies the laws relating phenomena to ends. One now realizes that this is another dyadic relation, on that account a Secondness (*CP* 5.126, 1903). In terms of the relation of phenomena to ends, normative science enables one to endorse deliberately or renounce certain lines of conduct. As a result, Peirce calls it as the science which separates the sheep from the goats (*CP* 5.37, 1903). But their Secondness is not simply the dualism

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[92] C. S. PEIRCE, *CP* 5.39, 1903. Italics his.

evident in distinguishing good from bad, or true from false. The concern of the normative science is not with mere organic interaction, for their normative character requires that relevant actions be free (*MS* 856, 1911).

The importance of the distinctions should not be exaggerated, but his more consistent view recognized that such hard duality belongs to the practical sciences that correspond to, and are informed by, normative sciences. Normative science is heuretic science, notwithstanding its practical activities. This is the reason why, on one occasion, Peirce called ethics "pre-normative" to avoid the distinctions within the area of ethics on the heuretic level.[93]

Peirce warns his readers that if they did not see that normative science deals with the phenomena in their Secondness, the reason lay in a too narrow conception of that branch of philosophy (*CP* 5.123, 1903). He even pointed out two errors in which the philosophy of his times generally misinterprets the nature of normative science. His references to these errors were very brief and cryptic. According to Potter, the first mistake that Peirce wants to point out is to think that normative science's chief and only concern is to differentiate goodness from badness and to say to what degree a given phenomenon is bad or good.[94] It is an error to think of normative science quantitatively instead of qualitatively. The

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[93] Cf. C. S. PEIRCE, *CP* 1.577, c.1902.

[94] Cf. V. POTTER, *CSPNI*, p. 29.

distinctions normative science is interested of are not of degrees but those of kind. But what about our use of comparative and superlative degrees of the adjective "good" in ordinary languages? They refer to a concrete subject participating in the goodness and not to the quality itself. This point is trivial yet Peirce wants to stress it due to the principle of continuity it carries behind. In reality goodness is a continuum. In a certain sense goodness (or badness) does not admit degrees. It is a nature of quality —of a Firstness— and it is without reference to anything else.[95]

The second error that Peirce detects in the philosophy of his times is that it considers normative science to relate exclusively to the human mind. Normative sciences, for their theoretical nature, are in their truest sense a science of the mind. The mistake is to think of the mind as something within the person, belonging to him and correlative to the real world (*CP* 5.128, 1903). Peirce stresses the same point to his old friend, James, in an earlier letter. He labeled the notion that thought is in consciousness[96] of man rather than consciousness in thought of man as nominalistic, because it is man that is in thought rather than thought in any of us (*CP* 8.256, 1897). In Potter's analysis: "mind is thought, and thought is Thirdness, and Thirdness is ubiquitous. The human mind is only one manifestation of Mind, perhaps the highest,

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[95]Goodness as goodness is an undifferentiated maxim.

[96] For Peirce consciousness is merely a collection of qualities of feelings.

because it has the greatest capacity for self-control, but not unique."[97]

Peirce adopts the traditional division of normative science into esthetics, ethics and logic after a long and serious ponderation. Besides, one will notice the close interrelations of the three and that Peirce's meaning of esthetics, ethics and logic is different from had been traditionally meant.

Esthetics, presented some difficulty and caused Peirce to hesitate to include it among the normative sciences. One can recall that his first lessons in philosophy was through esthetics, particularly of Schiller's *Aesthetische Briefe* which he studied in 1855 with Horatio Paine (*CP* 2.197, c. 1902). Almost after fifty years, Peirce expresses regret that he did not make a follow-up study of Esthetics as he later saw how fundamental it was to a theory of knowledge.[98] Anderson asserts, "aesthetics was a very late addition to Peirce classification of the sciences."[99] Although its place in Peirce's classification is anterior to logic, ethics and metaphysics, the previous studies of these branches help him articulate his esthetic ideal. Peirce realizes the importance of esthetics as a theoretical science when he started to note that it should not be defined in terms of beauty, the way it has been traditionally

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[97] V. POTTER, *CSPNI*, p. 30.

[98] Cf. C. S. PEIRCE, *CP* 2.120, c. 1902; 2.197, c. 1902; 5.129, 1903.

[99] D. ANDERSON, *SSPCP*, p. 42.

defined. The reason is, beautiful and ugly are categories within esthetics and it is precisely these categories that this branch of science must establish and justify. Esthetics as theoretical science has to do with norms and ideals in terms of which we can fix and finally apply the categories. Esthetics does not judge this or that to be beautiful or ugly, but tries to determine what makes the beautiful, beautiful and the ugly, ugly.

So esthetics, the first normative science, deals with ends in themselves. It studies the admirable in the light of our ability to interact with it, regardless of any other consideration. Peirce's esthetic ideal is that which "is admirable without any reason for being admirable beyond its inherent character" (*CP* 1.612, 1903). Kent would put it, "the ultimately admirable in itself."[100] Potter labeled it as "the ideal of ideals, the *summum bonum*."[101] It cannot be coerced by its presentness for some consciousness. According to Murphey, "the only alternatives lay in defining the good in terms which have nothing to do with individual feeling, or in showing that that feeling is something more than individual gratification," then he continued, "Peirce's esthetic ideal was a quality, or Firstness, of the developing embodiment, or Secondness, of reason, or Thirdness."[102] Peirce's esthetic ideal stands beyond all other considerations; it functions as a necessary condition for

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[100] B. KENT, *LCS*, p. 153.

[101] V. POTTER, *CSPNI*, p. 33.

[102] M. MURPHEY, *DPP*, 362f.

possibility of ideals; it needs no justification; it is what it is and it gives meaning to the rest. As such it belongs to the category of Firstness.

Peirce observes that the present English word for it is not suitable to this science and suggests the Greek word, kalos, as apt for it because it includes not only beautiful, but unbeautiful as well (*CP* 2.199, c. 1902). "Although Peirce's work in esthetics," Anderson recapitulated, "was never consummated, it did provide a tentative telos for self-controlled conduct that made room for goodness and truth of ethics and logic."[103] Normative science's Esthetics was up to determine what is admirable, and hence desirable, in itself and for itself. Esthetics sets up norms concerning qualities of feeling or Firstness. It subdivides in: *Physiology* which investigates on the *summum bonum* and discovers the physiology of the phenomena in their Firstness; C*lassificatory* which inquires into the conformity to the ideal; and *Methodology* which studies the principles of the esthetic objects.[104]

Ethics, the second normative science, was considered by Peirce as art. For many years Peirce considered ethics a

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[103] D. ANDERSON, *SSPCP*, p. 42.

[104] For further discussion of the three families of esthetics see B. KENT, *LCS*, p. 161-163.

practical discipline of no philosophic importance.[105] Then one day while working on his Logic, he recognizes that ethics was not correctly defined as the science of right and wrong, since they are themselves ethical conceptions, thus they cannot be used to define ethics (*CP* 2.198, c. 1902). Peirce does not see in ethics the direct concern of judging the course of action right or wrong, but what makes right, right and the wrong, wrong. Ethics has to do with norms and ideals in terms of which these categories have meaning.

> "The fundamental problem of ethics is not, therefore, what is right, but, what am I prepared deliberately to accept as the statement of what I want to do, what am I to aim at, what am I after? To what is the force of my will to be directed? (...) It is ethics which defines that end"[106].

The above quotes are taken from chapter 1 of the projected book, "Minute Logic," (*CP* 2.1-202, c. 1902) which Peirce was not able to finish. In chapter 4 (*CP* 1.575-584 also 6.349-352, c. 1902-3), of the said projected book, Peirce seems to contradict what he has said previously. He seems to deny that ethics is a normative science. "There is room for doubt whether ethics is correctly described as a normative branch of philosophy. The doctrine of rights and duties is

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[105] Cf. S. ROSENTHAL, "Charles Sanders Peirce," *Encyclopedia of Ethics*, vol. 2, L. Becker-C. Becker (eds.), Garland Publishing Inc., New York 1992, pp. 945.

[106] C. S. PEIRCE, *CP* 2.198, c. 1902.

practical rather than normative" (*CP* 1.577, c. 1902). He seems to say that logic is the only true normative science. The doubt whether ethics is true normative or not, arises from his identification of the subject matter of ethics. The subject matter of ethics are not right and wrong nor rights and duties.

> But the more important subject of their deliberations has been, What is good? Now this is hardly a normative question: it is pre-normative. It does not ask for the conditions of fulfillment of a definitely accepted purpose, but asks what is to be sought, not for a reason, but back of every reason. Logic, as a true normative science, supposes the question of what is to be aimed at to be already answered before it could itself have been called into being. Pure ethics, philosophical ethics, is not normative, but pre-normative.[107]

Peirce makes it explicit here that he wants logic to be the only normative science. This is understandable since "Minute Logic" was intended to be a book in logic, in which case, logic will be the center of attention and the main perspective from which the complete work will be developed. Peirce was writing here as a logician. Logic was one of his *forte*, and in this particular work he disowns responsibility for settling the number of normative sciences who other writers settled on the basis that they correspond to the three fundamental categories of objects of desire (*CP* 1.575, c. 1902). According to Potter, this inconsistency occurred due to "Peirce's inability to decide

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[107] C. S. PEIRCE, *CP* 1.577 c. 1902.

clearly, once and for all, just what is to be included in the discipline called ethics."[108] Besides, he is mixing as objects of study of this science not only the right and wrong, duties and rights, but also good. If goodness is to be taken as the object of ethical study and not as a category within ethics, clearly it becomes pre-normative, since it becomes an absolute, which cannot be judged, but simply recognized.

However, in the Harvard Lectures of 1903 (*CP* 5.14-212, 1903), Peirce clings to the traditional divisions of normative science and strives to show that these three sciences study the three doctrines that distinguish good and bad. Logic in regard to representations of truth, Ethics in regard to efforts of will, and Esthetics in objects considered simply in their presentation. (*CP* 5.36, 1903). So it is not only Esthetics that studies goodness but also the other normative sciences. This goodness is ultimately reasonableness manifesting itself in three different ways. Furthermore, he makes the connection of his form of pragmatism and the normative sciences: "For if, as pragmatism teaches us, what we think is to be interpreted in terms of what we are prepared to do, then surely *logic*, or the doctrine of what we ought to think, must be an application of the doctrine of what we deliberately choose to do, which is Ethics."[109]

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[108] V. POTTER, *CSPNI*, p. 35.

[109] C. S. PEIRCE, *CP* 5.35, 1903. Italics his.

If in "Minute Logic" ethics was pre-normative, in the light Peirce's Pragmatism, logic is a kind of moral conduct and so it depends on ethical norms. Ethics is the science of what ends of action we are deliberately prepared to adopt (*CP* 5.130, 1903). In this case it is the right action. Actions and conduct are Secondness. It is also the true normative science, not logic as he held it before, because reasoning in the last analysis is a voluntary act:

> Ethics —the genuine normative science of ethics, as contradistinguished from the branch of anthropology which in our day often passes under the name of ethics —this genuine ethics is the normative science *par excellence*, because an *end* —the essential object of normative science— is germane to a voluntary act in a primary way in which it is germane to nothing else.[110]

Yet this is not the final conception of ethics in Peirce. In the "Basis of Pragmatism,"[111] Peirce shows the final evolution of ethics and esthetics.[112] Here he shows that the control of thinking with a view to its conformity to a standard or ideal is a special case of the control to make it conform to a standard. Consequently, the theory of controlled thinking (Logic), must

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[110] C. S. PEIRCE, *CP* 5.130, 1903. Italics his.

[111] C. S. PEIRCE, *CP* 1.573-574; 5.549-554; and 5.448 n.1, 1905-6,

[112] This was pointed out to me by Prof. Nubiola. The last references Peirce makes about normative sciences are found in *MS* 673-677, c. 1911. He holds the same conception as the one formulated in "Basis of Pragmatism," 1906.

be a special determination of the theory of the controlled action —up to this point called as Ethics. The theory of the control conduct and action is the one in which the distinctive character of normative science are most strongly marked. Peirce finds the traditional conception of ethics over-stuffed —it involves more than the theory of such conformity; for example, it involves the theory of the ideal itself. This is what was causing him confusion, the use of the traditional sense of ethics in his discussion of the mid-normative science and esthetics —they overlapped. Peirce wants this mid-normative science only to be the theory of the conformity of action to an ideal, putting aside the study of ideal itself for another science —esthetics. Thus to avoid confusion he proposes a new term for the mid-normative science: Practics, which is not ethics.[113]

Ethics then, or Practics, the mid-normative science, the normative science *par excellence*, examines the phenomena in their Secondnesses (actions or conducts) considered in the dyadic relation they form with ends. It concerns the regulation of conduct in accordance with ends. Ethics in turn depends upon the determination of the ultimate end, the *summum bonum*, which is not a means to anything further, and which is nothing for its own justification, but which is good in and of itself. But this lies in the domain of esthetics. Consequently, Ethics is in conclusion dependent upon Esthetics.

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[113] Cf. C. S. PEIRCE, *CP* 1.573, 1906.

Peirce subdivides further Ethics or Practics into: *Physiology*, which discovers the ethical ideal and the physiology of conduct; *Classificatory*, which inquires in the conditions of conformity to the ethical ideal; and *Methodology*, which inquires into the principles of actualizing the ethical ideal.[114]

Logic was Peirce's grand passion that overshadowed all others. Whateley's *Logic* made an immediate impression to his logical inclination which had previously found expression in other ways (*CP* 4.533, 1905). It is the branch of science that occupied most of his life. When he started to write, the very first paper Peirce published was about Logic,[115] the whole science of logic was in a lethargic and unprogressive state.[116] Kent ventures to say that "Peirce was greatly dissatisfied with the state of logic and his views made it impossible for him to fill out the content of that science through an examination of the activities of those who pursued it."[117] The bulk of manuscripts he left on the subject is immense, an evidence that he never ceased to combat the torpid mode of logic. Peirce's

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[114] For a more detailed discussion of the three families of ethics see B. KENT, *LCS*, p. 165-169.

[115] I am referring here to "Memoranda concerning the Aristotelian Syllogism" (*W CP* 2.792-807) which he distributed at the Lowell Institute on November, 1866.

[116] Cf. T. GOUDGE, *The Thought of C. S. Peirce*, pp. 111f.

[117] B. KENT, *LCS*, p. 169.

interests in logic was not only confined to the aspects of formal logic, he was also attracted to its inductive aspects. I will not attempt to review his detailed contributions to formal logic here. What I propose to discuss is Peirce's theory of logic as a normative science.

Among Peirce's earliest definition of Logic is "the doctrine of truth, its nature and the manner in which it is to be discovered" (*W* 3.14, 1872). He closely relates it to the fixation of belief. Thus in other parts he defined it as "the science of the laws of the stable establishment of beliefs" (*CP* 3.429, 1896; 2.782, 1901). Logic's aim, according to Peirce, is reasoning, that would cohere perfectly with experience just like the aim of inquiry is to fix beliefs:

> Facts are hard things which does not consist in my thinking so and so (...) it is those facts that I want to know, so that I may avoid disappointments and disasters. Since they are bound to press upon at last, let me know them as soon as possible, and prepare for them. This (...) is my whole motive of reasoning. Plainly, then, I wish to reason in such a way that the facts shall not, and cannot disappoint the promises of my reasoning.[118]

Stable beliefs justify the rules of logic. If rules are followed, the beliefs produced by our inferences "will prove unshakable

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[118] C. S. PEIRCE, *CP* 2.173, 1902. See also *CP* 2.448, 1893 and 2.327, 1903.

by any doubt" than if the rules are not followed (*CP* 1.606, 1903).[119]

Peirce made outlines or drafts of a number of books about Logic: 'Search for a Method' (1893), 'How to Reason' (1894), 'Reason's Rule' (1902), 'Reason's Conscience' (undated), and 'Minute Logic' (1902). In these drafts, Peirce fondly calls logic as a normative science: "Logic is a normative science; that is to say, it is a sign of what is requisite in order to a certain aim" (*MS* 432, 1902). It is the science of reasoning, but it asks not what reasoning is, but what ought to be in order to further the goal of inquiry (*CP* 2.7, 1902). It is clear that the prominent subject of logic is reasoning. Reasoning is thinking. Logic, then, deals with thinking, which is a kind of action or a type of deliberate activity. Reasoning in logic is a free act and not simply an impulsive response to stimulus. Peirce remarks, "Reasoning unconsciously can hardly be called reasoning at all. As long as I simply find myself seized with a belief, without being able to give any account of how I came by it, logic has nothing to say except to warn me of the extreme danger that I shall err" (*CP* 7.458, undated).

What makes logic normative is its critical aspect. According to Potter, "it is the very heart of Peirce's logic and philosophical outlook."[120] Approval or disapproval of acts

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[119] Cf. C. MISAK, *Truth and the End of Inquiry*, p. 88.

[120] V. POTTER, *CSPNI*, p. 41.

requires that we are able to control those acts. The act of approving or disapproving is a voluntary act. That is why reasoning done unconsciously is not reasoning at all, for reasoning involves the will. A mental operation adds up as reasoning only if the conclusion is approved deliberately. For Peirce, the essential difference amid inference and other mental processes is that it is conscious, deliberate, and self-controlled: "But that makes all the difference in the world; for *inference* is essentially deliberate, and self-controlled. Any operation which cannot be controlled, any conclusion which is not abandoned, not merely as soon as *criticism* has pronounced against it, but in the very act of pronouncing that decree, is not of the nature of rational inference —is not reasoning.[121] Therefore, if a conclusion is not rejected in the very act of declaring against it, that operation is not reasoning. Logic, as the study of correct reasoning, is the science of means of acting reasonably.

So logic's concern is the deliberate or self-controlled conduct which can be evaluated or improved. Logic set up norms for deciding what thoughts we should entertain and what arguments we should accept, what procedure we should adapt, in other words, it is concerned with the norms for Thirdness. Logic is the first normative science accepted by Peirce. However, the logical order of dependence is precisely the reverse. It involves the ongoing correction of our methods

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[121] C. S. PEIRCE, *CP* 5.108, 1903. Italics his. See also *CP* 2.204, 1901; 2.182, 1902; and 5.55, 1903.

of reasoning, and its end is truth. Logic is the study of reasoning. Reasoning is but a special case of controlled action —controlled action dealing with Thirdnesses and not just with Secondnessess— and logic is in some way a special case of ethics. Anderson remarks that in Peirce, "logic emerges in the scheme of normative science as a special ethics, just as ethics involved a special determination of the esthetic ideal."[122] Ethics helps and guides logic by analyzing the ends to which these ends should be directed. Ethics is guided by esthetics who defines what is an end in itself, and so admirable and desirable in any and all circumstances regardless of any other consideration whatsoever.

Peirce conceives the three normative sciences to be interdependent to each other. Logic asks which theories and conceptions ought to be accepted. The question can only be answered in relation to an end, and discovering the end of thought is one of the first tasks of logic. Logic proposes what means are available to pursue those ends. As with ethics, it is a special determination of the general aim investigated by esthetics. Ethics proposes what goals man may reasonably take in various circumstances. Due to the evolutionary nature of that aim, the modifications resulting from esthetics' specific aim have indirect implications for logic's particular end. Indirectly also esthetics influences logic through ethics. In turn, ethics and logic are specifications of esthetics.

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[122] D. ANDERSON, *SSPCP*, p. 45.

Peirce's other definitions of the term 'logic' leads one to his subdivision of normative logic. In the "Regenerated Logic," he gives a trivium of conceivable sciences:

> "Exact" logic, in its widest sense, will (as I apprehend) consist of three parts. For it will be necessary, first of all, to study those properties of beliefs which belong to them as beliefs, irrespective of their stability. This will amount to what Duns Scotus called *speculative grammar*. For it must analyze an assertion into its essential elements, independently of the structure of the language in which it may happen to be expressed. It will also divide assertions into categories according to their essential differences. The second part will consider to what conditions an assertion must conform in order that it may correspond to the "reality," that is, in order that the belief it expresses may be stable. This is what is more particularly understood by the word *logic*. It must consider, first, *necessary*, and second, *probable* reasoning. Thirdly, the general doctrine must embrace the study of those general conditions under which a problem presents itself for solution and those under which one question leads on to another. As this completes a triad of studies, or trivium, we might, not inappropriately, term the last study *Speculative rhetoric*."[123]

Logic in its broader sense, is the science of the necessary laws of thought, or, better still (thought always taking place by means of signs), it is general semeiotic (*CP* 1.444,1896),

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[123] C. S. PEIRCE, *CP* 3.430, 1896. Italics his. See also C. S. *CP* 1.559, 1867 and *CP* 1.444, c. 1896.

which can be divided into *Speculative* or *Formal Grammar*, *Critic* and *Speculative* or *Formal Rhetoric*. Although Peirce did not extend the application of his categories up to this level in his classification, Potter says Peirce could have done that with success. This is Potter's application of Peircean categories to the divisions of logic: Speculative grammar is the Firstness of Logic since it deals with signs as signs regardless of anything else; Critic is the plausible candidate for Secondness, because it treats signs as true or false, that is in their relation to what they signify; and speculative or formal rhetoric fits the category of Thirdness because it treat signs as communicated, not merely in their relation to what they signify, but for whom they signify.[124]

Before leaving behind the analysis of Peirce's normative sciences it is good to mention that this branch demurred many criticisms during his time. In the lectures on Pragmatism delivered at Harvard in 1903, Peirce announces his disagreement to almost all the positions of his day in the area of ethics.[125] Two of these positions —psychologism (*CP* 5.110) and hedonism (*CP* 5.111)— Peirce considered to be of particular importance due to their objections to his own position were serious. The problem of psychologism arised

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[124] Nubiola offers specific sciences for these divisions: Speculative grammar is epistemology or theory of logic; Critic is strict logic; and Speculative rhetoric is theory of science.

[125] Pierce discusses thirteen positions although he concentrated in answering to only two positions, see *CP* 2.19-78, c. 1902.

from the direction of his logic. J. S. Mill, as Peirce pointed out, held that to say how a man ought to think has to be based ultimately on how he must think, making logic a question of psychology (*CP* 5.110).[126] Peirce argues that logic, like ethics and esthetics, involves normative judgments which criticize in order to correct, and therefore exert control over what is being criticized. The various sciences presuppose the use of logic, and thus validity of their respective inquiries will depend upon good reasoning. On the other hand, the science of psychology, in none of its variations determine good reasoning, but rather presupposes it.

The problem of hedonism resulted from the direction of his esthetics. On Peirce's own admission this objection is more serious and deceived him for many years (*CP* 5.111). The claim that by making logic dependent on ethics, and ethics dependent on esthetics makes ethics hedonist. This is a product of the confusion of his universal categories. Peirce argues that to base morality on esthetic judgment is not to embrace hedonism but to oppose it. While esthetics experience involves a quality of feeling, it involves a reasonable feeling, a consciousness belonging to the category of Thirdness or representation. The categories are not confused because Esthetics deals with the representation (Thirdness) of a quality of feeling (Firstness), just as ethics deals with a representation (Thirdness) of an action (Secondness) and Logic with a representation of thought

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[126] For Peirce's repeated criticisms of J. S. Mill position see *CP* 2.47-51.

(Thirdness). Hedonism has no place here since in this view pleasure consists in something intellectual; it is not the case of something is deliberately approved because it is pleasurable, rather something is pleasurable because it is approved. For Peirce, something is pleasurable because it is approvable or reasonable rather than the reverse.[127]

2.3.2.2.3. Metaphysics

When Peirce was a lecturer in Logic at Johns Hopkins University between 1879 to 1884 he encouraged his students to form a Metaphysical Club for a greater freedom of discussion. One of his former students recalled that he defined metaphysics to be "the science of unclear thinking."[128] An even earlier comment is "as metaphysics is a subject much more curious than useful, the knowledge of which, like that of a sunken reef, serves chiefly to enable us to keep clear of it" (*CP* 5.410, 1878). This definition sounds calumnious or amusing when one is confronted with Peirce's interest in metaphysics. This statement even sounds unfavorable to metaphysics. On several occasions, Peirce admitted that metaphysics "is in a deplorably backward condition" (*CP* 6.2, 1898). I venture to say that Peirce's statements unfavorable to

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[127] Cfs. V. POTTER, *CSPNI*, pp. 41-44 and S. ROSENTHAL, "Charles Sanders Peirce," *Encyclopedia of Ethics*, p. 945.

[128] Cf. C. LADD-FRANKLIN, "Charles S. Peirce at the John Hopkins," *Journal of Philosophy Psychology and Scientific Methods* 26 (1916): 716f.

metaphysics are directed against certain kinds of dogmatic and idealistic metaphysics. Peirce is against the common opinion that metaphysics is backward because it is intrinsically beyond the reach of human cognition. He thinks that scientists must abandon the idea that metaphysics is backward owing to any intrinsic difficulty of it.

> Why should metaphysics be so difficult? Because it is abstract? But the abstracter a science is, the easier it is, both as a general rule of experience and as a corollary from logical principles. Mathematics, which is far more abstract than metaphysics, is certainly far more developed than any special science; and the same is true, though less tremendously so, of logic. But it will be said that metaphysics is inscrutable because its objects are not open to observation. This is doubtless true of some systems of metaphysics, though not to the extent that it is supposed to be true. The things that any science discovers are beyond the reach of direct observation. We cannot see energy, nor the attraction of gravitation, nor the flying molecules of gases, nor the luminiferous ether, nor the forests of the carbonaceous era, nor the explosions in nerve-cells. It is only the premisses of science, not its conclusions, which are directly observed. But metaphysics, even bad metaphysics, really rests on observations, whether consciously or not; and the only reason that this is not universally recognized is that it rests upon kinds of phenomena with which every man's experience is so saturated that he usually pays no particular attention to them.[129]

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[129] C. S. PEIRCE, *CP* 6.2, 1898.

No; the chief cause of the backwardness of metaphysics is that its leading professors have been theologians (*CP* 6.3, 1898). These men, who came from theological seminaries, and were not nurtured in dissecting-rooms and other laboratories, are quite incapable of treating the subject in a true scientific spirit. Not only do they lack the experimental cast of mind, "they are inflamed with a desire to amend the lives of themselves and others, a spirit no doubt more important than the love of science" (*CP* 1.620, 1898).[130] This type of comments against theologians are not infrequent in Peirce's essays. It should be clear that his criticisms were not addressed to Catholic Theology but to the most common form of Protestant Theology in New England which had a strong bias against reason and was more inclined toward sentimentalism and external practice.

Peirce was a leading proponent for the reconstruction of metaphysics, it having its own method and subject matter, associated to human inquiry. He proposed to substitute traditional, dogmatic metaphysics with scientific metaphysics in the light of his pragmaticism. With this proposal, Peirce did not intend to reduce metaphysics into a collection of scientific propositions, rather, he wanted to say that metaphysics has to be humanly significant. From the perspective of his pragmaticism, metaphysics will be faithful to man's growing experience of the world and himself, aware of its limits, and

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[130] See also C. S. PEIRCE, *RLT*, 107f, 1898.

willing to submit itself to the rigorous control of human reason.[131]

Just like his ethics, the conception of metaphysics in Peirce was evolving as he went on his architectonic construction of his system. Peirce even claimed that his training in metaphysics was less systematic, although he read and deeply pondered upon all the main systems (*CP* 1.3, c. 1898). He also mentions that he was greatly influenced by the works of Duns Scotus (*CP* 1.6, c.1897). Peirce also recognizes "that metaphysics is a most difficult science, presenting more pitfalls for the uninformed than almost any, which a mere amateur at it would be foolish to fancy that he could escape" (*CP* 1.204, c. 1902). The evolution of Peirce's concept of metaphysics is an interesting one, but I leave it for another undertaking. What I propose to discuss here is his conception of metaphysics within his classification scheme.

Metaphysics in "Minute Logic" (*CP* 2.1-202, c. 1902) is classified as the third subdivision of philosophy. Peirce assigns to metaphysics a different nature from that of physical and psychical sciences. It also signifies that he considered it as related to the normative sciences —esthetics, ethics, logic— and to Phenomenology. In other parts, Peirce considers metaphysics as the linking joint between philosophy and the special sciences. "Metaphysics is the proper designation for the third, and completing department of coenoscopy, which in

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[131] Cfs. C. S. PEIRCE, *CP* 5.2-4, 1901; 5.414-435, 1905.

places welds itself into idioscopy, or special science. Its business is to study the most general features of reality and real objects."[132] Thus, metaphysics involves an observation of phenomena, like that performed by phenomenology. Peirce's metaphysics, therefore, is a quest for the ultimate categories in terms of which whatever in the universe is called 'real' can be interpreted. The successful formulation of such categories would result in a set of 'hypotheses' having a maximum degree of generality, and leading to a multitude of inductively verifiable consequences.

Metaphysics seeks to give an account of the universe of mind and matter. Normative science rests largely on phenomenology and on mathematics; metaphysics on phenomenology and on normative science. (*CP* 1.186, 1903) To Peirce, metaphysics remains subordinate to phenomenology and normative science, particularly logic for which it derives essential aid.

> Metaphysics consists in the results of the absolute acceptance of logical principles not merely as regulatively valid, but as truths of being. Accordingly, it is to be assumed that the universe has an explanation, the function of which, like that of every logical explanation, is to unify its observed variety. It follows that the root of all being is One; and so far as different subjects have a common character they partake of an identical being.[133]

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[132] C. S. PEIRCE, *CP* 6.6, c. 1903. [See also 1.1.29; 1.229; 1.186].

[133] C. S. PEIRCE, *CP* 1.487, c. 1896.

Phenomenology and logic furnish metaphysics not a set of self-evident truths but important regulative principles as well as ideas likely to prove productive in the search for categories. Metaphysics in its quest to discover the supremely general features of all that is real, entertains certain hypotheses which can be put to test, and these are most reasonably drawn from phenomenology and logic. Likewise its procedural principles must come from attested source; contrarily, invalid conclusions may be drawn. That is why, logic occupies so pre-eminent a position. On the other hand, throughout the inquiry incisive significance attaches to observational confirmation of the categories being sought. It is more like that noted in the case of the empirical side of phenomenology —the conclusions attained are equally tentative and subject to modification in the light of further evidence. According to Anderson, Peirce's metaphysics "is a highly speculative and fallible science. So it has to be taken with care and caution, and except in practical matters, where our metaphysical habits cannot be ignored, its results are to be taken as provisional."[134]

Metaphysics is the third and completing division of philosophy. It is the department of the science of discovery that investigates the phenomena common to all. Metaphysics mediates between phenomenology and normative science, between phenomena in themselves and their relation to ends, by a close study of the regularity, law or efficient

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[134] D. ANDERSON, *SSPCP*, p. 56f.

reasonableness therein involved. Phenomenology studies the phenomenon in its Firstness, separating the universal elements from which concepts are constructed. Normative science studies the phenomenon in its Secondness and climaxes in an inquiry into how the mind must respond to the impression of the phenomenon when the *summum bonum* is deliberately aimed. Metaphysics for its part, intercedes between these two divisions by studying the phenomenon in its Thirdness, as it is really is. Peirce was in favor of the construction of the metaphysical picture of reality. Metaphysics, therefore, investigates into the general features of reality and into whatever has individual reality:

> "Reality is the affair of Thirdness as Thirdness, that is, in its mediation between Secondness and Firstness. (...) Metaphysics is the science of Reality. Reality consists in regularity. Real regularity is an active law. Active law is efficient reasonableness, or in other words is truly reasonable reasonableness."[135]

To Peirce, metaphysics embraces all phenomena which exhibit regular action or law. The metaphysician studies such phenomena by abstracting as far as possible from their qualitative and existential aspects and concentrating on their Thirdness. Thus, metaphysics is the Thirdness of philosophy. Peirce subdivides further metaphysics into: *Ontology*, which discovers the kinds of phenomena in the psycho-physical universe and strives to determine their nature; *Physical*

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[135] C. S. PEIRCE, *CP* 5.121, 1903.

metaphysics, which studies the dynamical relations in the essential descriptions of phenomena in the universe; and *Religious metaphysics*, which investigates the universe in relation to human spiritual interests.

2.3.2.3. *Idioscopy*

Idioscopy embraces all the special sciences, which are principally occupied with the accumulation of new facts (*CP* 1.184, 1903). They form the last department of the science of discovery. By means of special training, special instruments, or special circumstances, they inquire into individual experiential events and infer truth that is usually plausible but nevertheless worth proving. These sciences employ special types of observation involving instrumental aids to the senses. The duty of scientists dedicated into these kinds of sciences is to discover the phenomena not previously known, to examine this phenomena, and to formulate truth that are simply probable. By doing so, they assume the truth of propositions that are outside the scope of their own investigations. Hence, it is necessary to acquire unusual experiences by means of specially arranged observations and appeal to the other sciences for principles. This demands special training and special group of information providing the context within which the new observation is to be contrasted and interpreted. This requires scientists to be specialized in one discipline and avoid to be jack-of-all-trades.

Just like any other science, the special sciences are dependent to other sciences. The special sciences do not only employ logical reasoning, it also ask principles from the

theory of logic. In general, more immediate sciences have more direct and intimate dependence, while those farther separated in the classification scheme receive logical principle mediated by preceding special science. The classificatory sciences on the one hand have to consult logic when they are evaluating their own classification; on the other hand descriptive sciences, such as history or geology, occasionally appeal directly to the theory of evidence (*CP* 2.121, c. 1902). Logic is not only the science to which the sciences of discovery must call for help. The more abstract questions go beyond the limits of special sciences, the more they need the general conceptions of metaphysics. Besides, metaphysics serves as a bridge between logic and the special sciences.

The special sciences, according to Peirce, are subdivided into two subclasses: *Physics* or *Physiognosy* and *Psychical science* or *Psychognosy*, in conformity to the nature of the objects investigated. The former studies the material universe, confining itself to phenomena as they occur, independently of how anyone thinks about them; in other words, the working of efficient causation. The latter investigates final causation; the products of finite minds, of human and other intelligence's, limited only to phenomena as they are dependent to how people think and feel.

These two parallel wings of Idioscopy are further classified into orders: *Nomological*; *Classificatory*; and *Descriptive* sciences. I deem it unnecessary to enumerate the long list of sub-orders of the physical and psychical sciences here for question of space and time. Besides, discrepancies abound, a note that Peirce was not able to consider it profoundly. Neither did Peirce deal systematically with the *Sciences of*

Review, whose main concern is to make the discoveries made by the sciences of discovery accessible to other disciplines; nor the *Practical Sciences* whose task is to discover truth for some defined human need, although the researchers themselves may not be involved in the practical applications of their investigations. He contented himself in mentioning for the former Comte's *Cours de philosophie positive* and Spencer's *System of Synthetic philosophy* and in giving a very long list of Practical sciences which his editors have wisely abbreviated for the latter.

The foregoing has demonstrated the major part of Peirce classification of the Sciences. One may have noticed already that although Peirce called it sciences, most of the subjects that he tackled were philosophical, an obvious indication of his quest to make philosophy a scientific venture. Hence the reason for this chapter's title as Peirce's scientific pursuit. Although his naturalist classification was also logical in such a way that the endeavor has been to arrange the scheme that each science ought to make appeal for its general principles, exclusively to the sciences placed above it, while for instances and special facts it will find the sciences below it more serviceable. Yet, I find a science missing in his classification. I am referring to theology. Is theology a science for Peirce? Does it possess the empirical and experiential bases just like all the other sciences included in his system to be called a science?

2.3.3 Theology

Theology is the study of God and God's relation to the world. It is an attempt of the adherents of faith to represent

their statements of belief consistently, to explain them out of the basis (or fundamentals) of their faith, and to assign to such statements their specific place with the contexts of all other worldly relations like nature, history and spiritual processes like reason and logic. In other words, Theology is the treatise about God either from the point of view of what can be known about Him from the created world by the natural power of reason, or from the point of view of Revelation given by God and received by man in faith.

As general characteristics of the sciences included in Peirce's classification scheme, for a discipline to be called a science, it must be a form of inquiry and must be empirically verifiable.[136] Theology as a study is an inquiry. Revelation of the kind of event that would have to be characterized as transcendent, however, can never be understood as an empirically verifiable entity. Yet, Theology as a science does not confine only on Revelation. Those forms of religious life that are positive and which arise from religious experience can be objectified, and are also subject of study of Theology. So why did Peirce not include it in his scheme?

Based on Peirce's thought and his emphasis on the scientific method, there are reasons why Theology cannot be regarded as science. As one who believed in the supreme importance of logical analysis, Peirce insisted that truth can only be attained if correct methods would be employed and

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[136] Professor Haack pointed this out to me.

employed strictly. His contention was that since Theology is designed to served only as a distinguishing mark of those who belong to the church, it is not developed under the conditions and by the use of methods necessary for the discovery of truth.[137]

Yet Peirce had Theology under consideration:

> (...) since theology pretends to be a science, (...) Theology, I am persuaded, derives its initial impulse from a religious wavering; for there is quite as much, or more, that is mysterious and calculated to awaken scientific curiosity in the intercourse of men with one another as in their intercourse with God, and it [is] a problem quite analogous to that of theology.[138]

It seems that the main reason for Peirce's hesitation to include Theology into his classification scheme was due to his animosity with theologians, whom he believed, were unscientific men:

> Yet we do not find that theologians have cared much for those problems. They have taken human conversation as a matter of course, with rather a remarkable absence of all curiosity about it. But, as far as I can penetrate into the motive of theology, it begins in an effort of men who have joined the Christian army and sworn fidelity to it to silence the suggestions of their hearts that they

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[137] Cf. C. S. PEIRCE, *CP* 6.450, c. 1895.

[138] C. S. PEIRCE, *CP* 6.3, 1898.

> renounce their allegiance. How far it is successful in that purpose I will not inquire. But nothing can be more unscientific than the attitude of minds who are trying to confirm themselves in early beliefs. The struggle of the scientific man is to try to see the errors of his beliefs (...).[139]

Another reason why Peirce refused to classify Theology as science can be his belief that it was not produced under the motive of disinterestedness required for a genuine theoretical science.[140]

In spite of these reasons, Peirce did not neglect the study of God and take into considerations religious experiences but he did not want it to be called Theology. The third subject matter of his religious metaphysics, after freedom and immortality is God. On the question of God, Peirce had a great deal to say throughout his career. This will be taken extensively in the following chapters.

2.4. C. S. Peirce's Pragmaticism

At the turn of the century, through his lectures, essays and books William James popularized pragmatism. Many of his ideas and much of his philosophy have entered the stream of popular American thought, and today form part of the

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[139] Cf. C. S. PEIRCE, *CP* 6.1-5, 1898.

[140] Cf. C. S. PEIRCE, *CP* 1.576 C. 1902. Peirce uses here knowledge instead of science.

intellectual equipment of the average citizen.[141] Nowadays nobody doubts that Peirce was the father of the American pragmatic movement. Yet unknown to many, the pragmatism popularized by James[142] is not the pragmatism thought of by its founder. The charge frequently leveled against pragmatism —namely, that it emphasizes practice to the detriment of theory— is unwarranted and false in the case of Peirce, even if he sees an important connection between them. I shall try to present here the separation of theory and practice in Peirce and the meaning of the "pragmatic maxim" in terms of practical consequences.

2.4.1. Theory and Practice

In the Cambridge Conferences Lectures of 1898 entitled, "Reasoning and the Logic of Things,"[143] Peirce consistently and repeatedly maintained not only that theory has nothing to

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[141] L. MORRIS, *William James: The Message of a Modern Mind*, Greenwood, New York 1969, p. 88.

[142] The philosophy of the primacy of action and action over contemplation and theory to the extent of conceiving truth as a function of human praxis, that has had an omnipresent impact on the American culture is James' version of pragmatism. (See the volume *Pragmatism: A new Name for some Old Ways of Thinking*, of the *Works of William James*, Harvard University Press, Cambridge 1975-77).

[143] All eight lectures are now recopliated and published as a single volume. See C. S. PEIRCE, *Reasoning and the Logic of Things*, K. Ketner (ed.), Harvard University Press, Cambridge 1992. *RLT* from here on.

do with practice, but also that it ought not to have anything to with it. Considering the title he suggested for this series, "Detached Ideas on Topics of Vital Importance,"[144] nothing could be more extraneous to his view of philosophy than a set of "detached ideas," and nothing could be less promising a subject for philosophical discourse than "vitally important topics." But one thing is clear for Peirce: philosophy must be done systematically.

> Philosophy is that branch of positive science (i.e., an investigating theoretical science which inquires what is the fact, in contradistinction to pure mathematics which merely seeks to know what follows from certain hypotheses) which makes no observations but contents itself with so much of experience as pours in upon every man during every hour of his waking life. The study of philosophy consists, therefore, in reflexion, and pragmatism is that method of reflexion which is guided by constantly holding in view its purpose and the purpose of the ideas it analyzes, whether these ends be of the nature and uses of action or of thought.[145]

Somewhere in the foregoing is presented Peirce's branches of philosophy in the classification of sciences. Metaphysics,

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[144] Cf. R. B. PERRY, *The Thought and Character of William James*, vol. 2, Little, Brown & Co., Boston 1936, pp. 417-421.

[145] C. S. PEIRCE, *CP* 5.13 n.1, 1889. In *CP* 5.39, 1903 Peirce says "by positive science I mean an inquiry which seeks for positive knowledge; that is, for such knowledge as may conveniently expressed in a categorial position.

since it involves the other two branches as mediator between the phenomena and norms is the science of the Real *par excellence*.[146] Yet Peirce is fond of saying that metaphysics is gibberish, and meaningless, not intrinsically, but because of its backward state. Among the reasons he makes which is yet to be mentioned is due to the neglect of Kant's advice to build metaphysics architectonically, in the manner in which a house is constructed— on a broad and solid base, and out of materials tested for the purpose.[147] This architectonic structure must be put together with exact logical care. "What is needed above all, for metaphysics, is thorough and mature thinking; and the particular requisite for success in the critic of arguments is exact and diagrammatic thinking" (*CP* 3.406, 1892).In other words, Peirce is affirming that there can be no sound metaphysics unless it be systematic and based on logic. Then metaphysical philosophy can advance if and if it is constructed by "laboratory men," whose sole motivation is the pursuit of truth wherever it may be found.[148] Besides, the purpose of any theory is to "furnish a rational account of its object" (*CP* 2.1, c. 1902), and so it aims directly at knowledge.

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[146] Cf. V. POTTER, *CSPNI*, pp. 18-24.

[147] Cf. C. S. PEIRCE, *CP* 6.7-34,1891; 1.176-79, c. 1893; and 5.5, c. 1907.

[148] Cf. C. S. PEIRCE, *RLT*, 106-108, 1898; *CP* 5.142, 1905.

Peirce is battling two rather common views of theoretical investigation. The first view looks at science and philosophy as a body of acquired truth which is to be taught and to be learned for instruction and betterment of the human race. It is expected that the possession of this truth will have immediate beneficial effects upon individuals and society. The second view has the sole motive for scientific and philosophical inquiry the application of the results for the immediate personal or social benefits of the human race. Technology then become science's ultimate motive and justification; on the other hand, philosophy's ultimate motive and justification is ideology.

The first view, according to Peirce, skips science as a

> "(...) living historic entity. (...) As such it [science] does not consist so much in *knowing*, nor even in organized knowledge, as it does in diligent inquiry into truth for truth's sake, without any axe to grind, nor for the sake of the delight of contemplating it, but from an impulse to penetrate into the reason of things."[149]

The second view, Peirce asserts, corrupts the scientific enterprise from the beginning because it discriminates the outcome and restricts the extent of scope or research. He refers to this view as "logical hedonism," due to the fact that it falls victim to the same mistake as moral hedonism does: it confuses the usual consequence of research with its effective

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[149] C. S. PEIRCE, *CP* 1.44, c. 1896. Italics his

motive force. Just as moral hedonism mistakes some form of utility for truth. In Peirce's opinion, such an error generally results in achieving neither genuine satisfaction nor authentic utility.[150]

In the first lecture of the Cambridge Conferences, "Philosophy and the Conduct of Life" (*RLT.*, 105-122), Peirce begins with the remarks that the Greeks

> expected philosophy to affect life —not by any slow process of percolation of forms, as *we* may expect that researches into differential equations, stellar photometry, the taxonomy of echinoderms and the like will ultimately affect the conduct of life— but forthwith in the person and soul of the philosopher himself, rendering him different from ordinary men in his views of right conduct.[151]

Then Peirce continues: "Now, Gentlemen, it behooves me, (...) to confess to you that in this respect I stand before you an Aristotelian and a scientific man, condemning with the whole strength of conviction the Hellenic tendency to mingle philosophy with practice" (*RLT*, 107). Practice, the conduct of life, utility, what would forthwith make one a better more successful man— none of this has or should have anything to do with science or philosophy since they undermine those

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[150] Cf. C. S. PEIRCE, *RLT*, 107, 1898.

[151] C. S. PEIRCE, *RLT*, 106, 1898.

disciplines and endanger the moral integrity of the philosopher and the scientist.

Two years earlier, in the essays, "Lessons from the History of Science" (*CP* 1.43-125), Peirce thought that all men might be classified into three classes according to what they considered to be the highest good in life:

> If we endeavor to form our conceptions upon history and life, we remark three classes of men. The first consist of those for whom the chief thing is the quality of feelings. These men create the art. The second consists of the practical men, who carry the business of the world. They respect nothing but power, and respect power only so far as it is exercised. The third class consists of men to whom nothing seems great but reason. If force interest them, it is not in its exertion, but in that it has a reason and a law. For men of the first class, nature is picture; for men of the second class, it is an opportunity; for men of the third class, it is a cosmos, so admirable, that to penetrate to its ways seems to them the only thing that makes life worth living. These are the men whom we see possessed by passion to learn, just as other men have passion to teach and to disseminate their influence. If they do not give themselves over completely to their passion to learn, it is because they exercise self-control. Those are the natural scientific men; and they are the only men that have any real success in scientific research.[152]

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[152] C. S. PEIRCE, *CP* 1.43, c. 1896.

Going back to the Cambridge Conferences lectures, what does "vital importance" really mean to Peirce? It has two senses in Peirce: in the first sense, vitally important topics refer to the question of physical life and well-being in the common, ordinary course of things; in the second sense, vitally important topics refer to those questions of ultimate significance which make life worth living at all. Peirce was ironic in this essay precisely depending upon the play between the two senses. If one is convinced that the former is the only sense, then neither philosophy nor science need to play any role in that life. Attending to one's natural sentiments and instincts in these matters will afford one much better chance of success. On the contrary, if one is convinced that coming to know the truth about oneself and about the universe is what makes life specifically human and thus affords man his only genuine fulfillment, the pursuit of philosophy and science becomes a way of life, and questions of everyday business take a secondary and relatively modest place of importance.

The practice which Peirce would separate from theory is the "conduct of life," that which takes place in the arena of practical affairs, whether the decisions concerns ordinary business or great crises. Peirce would remark:

> In great decisions , I do not believe it is safe to trust the individual reason. In everyday business, reasoning is tolerably successful; but I am inclined to think that it is done as well as without the aid of theory as with it. A *logica utens*, like analytical mechanics resident in the billiard player's nerves, best fulfills familiar uses. (...) But in practical affairs, in matters of vital importance, it is very easy to exaggerate the importance of ratiocination. Man is so vain of his power of reason! (...) It is the

> instincts, the sentiments, that make the substance of the soul. Cognition is only its surface, its locus of contact with what is external to it.[153]

Peirce, then, is convinced that this attitude toward theory and practice is itself recommended by reason:

> Were I willing to make a single exception to the principle I thus enunciate, and to admit that there was one study which was at once scientific and yet vitally important, I should make that exception in favor of logic; for the reason that if we fall into the error of believing that vitally important questions are to be decided by reasoning, the only hope of salvation lies in formal logic, which demonstrates in the clearest manner that reasoning itself testifies to its own ultimate subordination to sentiment.[154]

Peirce observes that if you accept this "conservative sentimentalism" and modestly rate your own reasoning powers in matters of vital importance, then you will encounter the very first command laid upon you by instinct itself would be to recognize a higher business than your business. "Thus it is while reason and science of reasoning strenously proclaim the subordination of reasoning to sentiment, the very supreme command of sentiment is that man should generalize (...)" (*CP* 1.673).

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[153] C. S. PEIRCE, *RLT*, 109f. Italics his.

[154] C. S. PEIRCE, *CP* 1.672. 1898.

2.4.2. The meaning of Peirce's pragmatic maxim

I have mentioned in the previous chapter Peirce's pragmatic maxim. Peirce wrote once that the pragmatic maxim was nothing but Jesus' recommendation "By the fruits you shall know them" [Mt 7:20].[155] He might have justly pointed out that the ethical principles of investigation proposed in his pragmatism is also in the New Testament in the parable of the lilies[156] which he might have paraphrased as "seek first the truth, and all things will be added to you." In 1896 his friend William James published *The Will to Believe* dedicated to him. In the 1898 Cambridge lectures Peirce substitutes in matters of theoretical investigation "believe" by "learn" in his expression the "Will to Learn": "I hold that what is properly and usually called belief (...) has no place in science at all. We *believe* the proposition we are ready to act upon (...) But pure science has nothing to do with action (...)" (*CP* 1.673).

There is something paradoxical about the remark just quoted above since the pragmatic maxim of 1878 was formulated in the context of the fixation of belief. In those early papers, Peirce argued that the whole point of inquiry is to fix belief, and the best way to do that is by the scientific method. How then can he now claim that belief has no room at all in science? Probably, we should recall the distinction

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[155] Cf. C. S. PEIRCE, *CP* 5.465, c. 1907.

[156] Cfs. Mt 6:28-33 and Lk 12:27-31.

between science as a lived enterprise and science as an established body of truths, for example, truths of theoretical beliefs. Genuine doubt, not mere paper doubt, is the stimulus of scientific inquiry. When the irritation of such doubt is removed, inquiry ceases. Fixation of belief in that sense is the consequence or outcome of inquiry, but it cannot be its immediate purpose. Solely the Will to Learn, to pursue genuine doubt wherever it may lead, not the Will to Believe, to fix belief and so to severe investigation, can play a role in the science as a lived enterprise of inquiry. Moreover, Peirce considered the notion of "theoretical belief" to be uncertain. At the very best, it could mean only that certain scientific laws and theories are provisionally accepted by the scientific communities. Only in this sense, I think, is there a body of scientific truth and so of theoretical beliefs.

In my understanding of Peirce, a practical belief is a habit of deliberate behavior, that upon which we are prepare to act, while a theoretical belief is an expectation concerning future experience either actual or merely possible. While it is true that "every proposition that is not pure metaphysical jargon and chatter must have some possible bearing upon practice" (*CP* 5.539), as the pragmatic maxim says, still it must have some "possible bearing," in other words, it must consider what conceivable practical consequences the proposition may have, and this is true even in purely theoretical propositions. Yet one must not be persuaded to think that conceivable practical consequences is the same as practical consequences in the sense of practice— action here and now. In Peirce, while every theoretical belief is at least indirectly a practical belief, this is not the meaning of theoretical belief. A

theoretical belief is an expectation or anticipation of future experiences, actual or merely possible, not in the sense that it anticipates some muscular sensations, but in the sense that it is

> the stamp of approval, the act of recognition as one's own, being placed by a deed of the soul upon an imaginary anticipation of experience, so that, if it be fulfilled, (...) the person who stands in expectancy will almost claim the event is his due, his triumphant 'I told you so' implying a right to expect as much from a justly regulated world.[157]

Since all beliefs essentially involved expectation (*CP* 5.542), and are directed to the future, the theoretical beliefs of science must be so too. But what is expected from them directly, is not some bodily reaction. Indirectly and ultimately, through the meditation of thought, such muscular sensation may be anticipated according to Peirce. What is directly anticipated by theoretical belief can only be another thought. Here are some of his examples:

> To say that a quadratic equation which has no real root has two different imaginary roots does not sound as if it could have any relation to experience. Yet it is strictly expectative. It states what would be expectable if we had to deal with quantities expressing the relations between objects, related to one another like the points of the plane of imaginary quantity. So a belief about the incommensurability of the diagonal relates to what is expectable for

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[157] C. S. PEIRCE, *CP* 5.540, c. 1902.

a person dealing with fractions; although it means nothing at all in regard to what could be expected in physical measurements, which are, of their very nature, approximate only. Let us examine a highly abstract belief; and see whether there is any expectancy in it. Riemann declared that infinity has nothing to do with the absence of a limit but relates solely to measure. This means that if a bounded surface be measured in a suitable way it will be found infinite, and that if an unbounded surface be measured in a suitable way, it will be found finite. It relates to what is expectable for a person dealing with different systems of measurement.[158]

As a result, even if the proposition must have a reference to some conceivable application to practice in order for it to have any definite meaning at all, still when the pragmatic maxim is applied to theoretical beliefs, the practical consequences are purely a matter of thought. Even if practical beliefs, inasmuch as they have been articulated and critically examined, they too have been transformed through thought into rules for deliberate rational conduct.

Peirce disassociates himself from other pragmatists. In a letter to William James in 1902, Peirce remarks that many philosophers who call themselves pragmatists miss the very point of it:

> But I seem to myself to be the sole depository at present of the completely developed system, which all hangs together and cannot

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[158] C. S. PEIRCE, *CP* 5.541, c. 1902.

> receive any proper presentation in fragments. My own view in 1877 was crude. Even when I gave my Cambridge lectures I had not really got to the bottom of it or seen the unity of the whole thing.[159]

Potter suggests that it was only when Peirce became aware of the connection of the normative sciences to his categories that he realized how crude his first presentation of the pragmatic maxim was.[160] In his 1878 papers[161] he seemed to identify meaning with action-reaction. A clear example of this is when Peirce went to the extreme of saying that there would be no falsity in saying of a diamond that it was soft until someone tried to scratch it. (*CP* 5.403, 1878) This is explained by the fact that he had not yet seen that action-reaction is to be understood only in terms of purpose and that purpose is essentially thought.[162] Thought may well involve action, but it cannot be identical with it. So other pragmatic positions are fragmentary pushing the maxim too far so as to make action the be-all and end-all thought. He argued the contrary:

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[159] C. S. PEIRCE, *CP* 8.255, 1902.

[160] Cf. V. POTTER, "Normative Science and the Pragmatic Maxim," *Journal of the History of Philosophy* 5 (1967): 41-53.

[161] "Fixation of Belief" (*CP* 5.358-387) and "How to Make Our Ideas Clear" (*CP* 5.388-410).

[162] In *CP* 5.453 and 457, 1905 Peirce used the same example of the hardness of the diamond to refute his statement of 1878.

> If it be admitted (...) that action wants an end, and that that end must be something of a general description, then the spirit of the maxim itself, which is that we must look to the upshot of our concepts in order rightly to apprehend them, would direct us towards something different from practical facts, namely, to general ideas, as the true interpreters of our thought.[163]

Peirce revised this maxim several times to make his meaning clear. In the Harvard Lectures of 1903 he presented the maxim in this manner:

> Pragmatism is the principle that every theoretical judgment expressible in a sentence in the indicative mood is a confused form of thought whose only meaning, if it has any, lies in its tendency to enforce a corresponding practical maxim expressible as a conditional sentence having its apodosis in the imperative mood.[164]

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[163] C. S. PEIRCE, "Pragmatic and Pragmatism," *Dictionary of Philosophy and Psychology*, J.M. Baldwin (ed.), vol. 2, Peter Smith, Gloucester 1960, p. 322.

[164] C. S. PEIRCE, *CP* 5.18, 1903. Peirce presented also his earlier pragmatic maxim here: But the Maxim of Pragmatism, as I originally stated it, *Revue Philosophique* VII, is as follows: Considérer quels sont les effets pratiques que nous pensons pouvoir être produits par l'objet de notre conception. La conception de tous ces effets est la conception complète de l'objet. [p. 48.] Pour développer le sens d'une pensée, il faut donc simplement déterminer quelles habitudes elle produit, car le sens d'une chose consiste simplement dans les habitudes qu'elle implique. Le caractère d'une habitude dépend de la façon dont elle peut nous faire agir non pas seulement dans telle circonstance probable, mais dans toute circonstance possible, si improbable qu'elle puisse être. Ce

As previously presented, Peirce pragmatism distinguishes an essential connection between thought and action, between theory and practice, without confusing the two and without inverting the order of the relation. In Peirce, thought at the end applies to action, and theory at the end applies to practice, at least in the sense of reference to conceivable action and to conceivable practice. Certainly, this is quite different from making thought consist in action and theory consist in practice, or from making thought's ultimate end action and theory's ultimate end practice. Action through thought is only the consequence of investigation; it is neither its end nor its legitimate motive.

2.4.3. Pragmatism and Pragmaticism

William James, in a lecture he made at the University of California at Los Angeles in 1898, publicly launched pragmatism as a new philosophy. By 1908, ten years after its launching, Arthur O. Lovejoy made mention of the thirteen diverse types of pragmatism as distinguished from one another by its theories of knowledge, of truth, of significance, and of

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qu'est une habitude dépend de ces deux points: quand et comment elle fait agir. Pour le premier point: quand? tout stimulant à l'action dérive d'une perception; pour le second point: comment? le but de toute action est d'amener au résultat sensible. Nous atteignons ainsi le tangible et le pratique comme base de toute différence de pensée, si subtile qu'elle puisse être [p. 47.].

values.[165] Ferdinand Schiller observed that there are as many pragmatisms as pragmatists, not merely different but radically opposed from its other.[166] This provoked Peirce to write in 1905:

> It probably never happened that a philosopher has attempted to give a general name to his own doctrine without that name's soon acquiring in common philosophical usage, a signification much broader than that was originally intended [167]

Peirce was not in accord with James' extravagances. Although he conceived pragmatism as a systematic scientific process of "diligent inquiry into truth for truth's sake,"[168] Peirce never went to the extent of humanizing truth by making it a function of man the way James did. Joseph De Torre writes, "in James' pragmatism, the truth is for man, not man for truth: reality is what *man* makes of it."[169] Talking about the objectivity of Truth, Peirce says that truth "is SO, (...) whether you or I, or anybody thinks it is so or not" (*CP* 2.135, c. 1902). Peirce believes that truth is something not

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[165] Cf. A. LOVEJOY, *The Thirteen Pragmatisms and Other Essays*, Johns Hopkins University Press, Baltimore 1963.

[166] Cf. C. S. PEIRCE, *CP* 5.494, c. 1907.

[167] C. S. PEIRCE, *CP* 5.413.

[168] C. S. PEIRCE, *CP* 1.44.

[169] J. DE TORRE, *William James: Pragmatism*, Southeast Asian Science Foundation Inc., Manila 1990, p. 92. (italics his.)

which man make out of it, rather as something beyond his complete comprehension and whose sparks illuminate his quest for a thorough scientific investigation. This distortion made by his contemporaries made Peirce change his "pragmatism"

> (...) it is time to kiss his child good-by and relinquish it to its higher destiny; while to serve the precise purpose of expressing the original definition, he begs to announce the birth of the word «pragmaticism», which is ugly enough to be safe for kidnappers.[170]

Pragmaticism, according to the Peirce's version, aspires for a reformed scientific philosophy characterized by the method as expressed in the pragmatic maxim. According to this maxim, "if one can define accurately all the conceivable experimental phenomena which the affirmation or denial of concept could imply, one will have a complete definition of the concept, and there is absolutely nothing more in it."[171] Meaning is a matter of conceivable, experimental, experiential consequences of an application of a concept. The pragmatic meaning of 'x is F' is given by a list of conditionals. As the mature Peirce overcame his youthful nominalist tendencies, he insisted on the subjunctive formulation. Susan Haack presents it in this manner: "if you were to do A_1, experiential consequence E_1 would result', 'if you were to do A_2, experiential consequence E_2 would result' (...), Thus, a

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[170] C. S. PEIRCE, *CP* 5.414, 1905.

[171] C. S. PEIRCE, *CP* 5.412, 1905.

diamond really is hard if it would scratch other substances if it were rubbed against them —even if it never is rubbed. And Peirce stresses that the list of meaning-specifying conditionals is open-ended; meaning grows, as he puts it, as our knowledge grows."[172] In an unpublished letter-article to the editor of *The Nation* written in 1907, Peirce sketches the differences between James' pragmatism and his pragmatism, Schiller's definitions of pragmatism and Papini definition of pragmatism in an amicable tone and less polemical manner.[173]

Peirce aims to free philosophy of metaphysical excesses, specifically of the artificial confines of the Cartesian theory of knowledge, sustaining it by the realist elements of his view of perceptions and of natural law, and putting emphasis in the social aspects of inquiry. Scientific inquiry may be undertaken by individuals, but the individual researcher will make his work freely available to others for ratification, criticism, refinement and revision, since the researcher is just one of the contributors to a vast enterprise extending both within and across generations. Peirce, a scientific inquirer himself, professes a "contrite fallibilism."[174] "The scientific man is not in the least wedded to his conclusions. He risks nothing upon

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[172] Cf. S. HAACK, "Pragmatism," *The Blackwell Companion to Philosophy*, Tsui-James, E.-Bunnin, N. (eds.), Blackwell, Oxford 1996, pp. 645-648.

[173] Cfs. C. S. PEIRCE, *CP* 5.494-496, c. 1907.

[174] C. S. PEIRCE, *CP* 1.14, c. 1897.

them. He stands ready to abandon one or all as soon as experience opposes them."[175] A scientific inquiry can then be tedious and can run long enough to an infinite quest since a "scientific doubt never gets completely set to rest in regard to any question until, at last the very truth about the question becomes established."[176]

Peirce also wrote somewhere that "pragmaticism is a species of prope-positivism," whose aim was

> (...) to show that almost every proposition of the ontological metaphysics is either meaningless gibberish —one word being defined by other words, and they by still others, without any real conception of being reach— or else is down right absurd; so that all such rubbish being swept away, what will remain to philosophy will be a series of problems capable of investigation by the observational methods of true sciences (...)[177]

With Pragmaticism, Peirce aimed at eliminating the illegitimate and the pragmatically meaningless from scientific metaphysics. In his first paper of the 1877 *Popular Science Monthly* series entitled, "Illustration of the Logic of Science"[178] he discussed the method of authority and its

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[175] C. S. PEIRCE, *CP* 1.635, 1898

[176] C. S. PEIRCE, *CP* 7.77, undated.

[177] C. S. PEIRCE, *CP* 5.423, c. 1902.

[178] "The Fixation of Belief," *CP* 5.358-377.

abuses. Too much of theology has been imposed by the method of authority, creating an atmosphere which frustrates genuine inquiry into truth. His biting criticisms and hostility were not directed to religion and theology itself, but to those whose tendency favored this unscientific approach toward establishing belief perhaps not uncommon in the New England environment. Haack says that Peirce was yearning for "a conception of truth as accessible enough to be realistically aspired to, yet objective enough to be worthy of the name."[179]

2.4.4. Synechism

Peirce remarked rather dissipatingly that his pragmatism was intimately related to synechism or the doctrine of continuity. He said synechism "is not opposed to pragmatism in a manner in which C. S. Peirce applied it, but includes the procedure as a step" (*CP* 5.4, 1901). Elsewhere he remarks that a thorough-going proof of pragmaticism's truth "would essentially involve the establishment of truth of synechism" (*CP* 5.415, 1905). In a letter to William James, he writes that his own version of pragmatism leads to synechism (*CP* 8.257). Manley Thompson, suggests that the main features of synechism were developed after the first formulation of the pragmatic maxim in 1877 when Peirce embarked on his evolutionary cosmology and its subsequent revision in the light of the doctrine of normative science in the 1900s.

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[179] S. HAACK, "Pragmatism," *The Blackwell Companion to Philosophy*, p. 656.

Thompson affirms further that it was Peirce work with synechism which led him to see the relevance of normative science for pragmatism.[180] Synechism or the Peircean conception of continuity according to Carl Hausman is the heart of Peirce evolutionary realism.[181]

According to his definition in the Baldwin's *Dictionary of Philosophy and Psychology*, synechism is not "an ultimate and absolute metaphysical doctrine," but like the pragmatic maxim itself "is a regulative principle of logic." The pragmatic maxim deals with the meaning of concepts, the synechistic principle prescribes "what sort of hypothesis is fit to be entertained and examined" (*CP* 6.173, 1901). What synechism seeks to exclude is the hypothesis which would block the road to inquiry:

> The general motive is to avoid the hypothesis that this or that is inexplicable. For the synechist maintains that the only possible justification for so much as entertaining a hypothesis is that it affords an explanation of the phenomena. Now, to suppose a thing inexplicable is not only to fail to explain it, and so to make an unjustifiable hypothesis, but, much worse, it is to set up a barrier

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[180] Cf. M. THOMPSON, *The Pragmatic Philosophy of C. S. Peirce*, Phoenix Books, Chicago 1963, p. 103.

[181] Cf. C. HAUSMAN, *Charles S. Peirce's Evolutionary Philosophy*, Cambridge University Press, New York 1993, pp. 14-19; 140-193.

> across the road of science, and to forbid all attempt to understand the phenomenon.[182]

Synechism as a logical principle, thus, discourages one to consider any inexplicability as a possible explanation. This is nothing but the assumption behind his scientific pursuit— that the world is knowable. Yet one must not jump into conclusion that synechism is affirming that it can explain everything. Peirce's synechistic principle does not deny that there is an element of the inexplicable and of the ultimate and brute in the world. That would be to deny experience. It is the element of shock and surprise which counters expectation, engenders doubt, and therefore stimulates further inquiry. In a word, there is a sort of duress which in the very act is inexplicable and ultimate— there is brute fact, there is Secondness. Evidently, this does not block the road to inquiry. It rather stimulates one to generalize from the experience, to form new hypotheses, because he is convinced that the facts can be understood, that they manifest another mode of being other that brutishness— the obedience to the rationality of law.

> It would, therefore, be most contrary to his own principle for the synechist not to generalize from that which experience forces upon him, especially since it is only so far as facts can be generalized that they can be understood; and the very reality, in his way of

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[182] C. S. PEIRCE, *CP* 6.171, 1901.

> looking at the matter, is nothing else than the way in which facts must ultimately come to be understood.[183]

Understanding Synechism as a principle of inquiry is coherent with the understanding of the interdependence of Peirce's categories of Secondness and Thirdness. Every phenomenon as far as it is an event has something brute about it. If that event happens contrary to our expectations, that bruteness manifests itself as struggle and shock. However, as far as that event is a kind of phenomenon, it can be understood, and our expectations can be altered to include its similar occurrence in the future. Consequently, the ultimacy of fact is not the last word; it is not something to be looked upon as absolutely realized. For science and so for synechism in Peirce, facts cannot be looked upon as unrelated and isolated. Isolated facts would be ultimate in the objectionable sense of being inexplicable and unintelligible. They would the Kantian "things-in-themselves." In a word, they would not have any reality.

Peirce insists that facts cannot be considered incapable of generalization. They must be seen in a system[184] where they are related and grouped according to general laws. Peirce think of this relatedness as a continuum.

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[183] C. S. PEIRCE, *CP* 6.173, 1901.

[184] Cf. C. S. PEIRCE, *CP* 1.424 1897.

> A true continuum is something whose possibilities of determination no multitude of individuals can exhaust.(...) To be sure, the synechist cannot deny that there is an element of the inexplicable and ultimate, because it is directly forced upon him; nor does he abstain from generalizing from this experience. True generality is, in fact, nothing but a rudimentary form of true continuity. Continuity is nothing but perfect generality of a law of relationship.[185]

Therefore, if continuity is the ground of synechism and the truth of synechism is the proof of pragmaticism, then continuity must be essential to understanding pragmaticism. In Peirce's own words:

> (...) synechism amounts to the principle that inexplicabilities are not to be considered as possible explanations; that whatever is supposed to be ultimate is supposed to be inexplicable; that continuity is the absence of ultimate parts in that which is divisible; and that the form under which alone anything can be understood is the form of generality, which is the same thing as continuity.[186]

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[185] C. S. PEIRCE, *CP* 6.170, 6.172 1901.

[186] C. S. PEIRCE, *CP* 6.173,1901

3. GOD, RELIGION AND C. S. PEIRCE

On account of some misinterpretations of their predecessors, many Peirce scholars for some time did not bother to touch on the religious ideas of Charles S. Peirce. The editors of the *Collected Papers of Charles S. Peirce* assumed that Peirce's religious ideas were rather tenuously connected with the rest of the system, offering, apart from scattered flashes of insight, views with a sociological or biographical, rather than a fundamental systematic interest.[1] Charles Hartshorne ventured to suggest that Peirce's religious perspective was inconsistent to the basic drive of his philosophy. He even expressed surprise that Peirce should

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[1] Cf. P. WEISS-C. HARTSHORNE, "Editorial Note," *CP* 6, p. v.

have been interested in religion at all.[2] Many later scholars like Thomas Goudge implicitly endorsed this argument by systematically ignoring the religious dimension of his thought.[3] According to Murray Murphey, Peirce adopted throughout his entire philosophical career Immanuel Kant's "prohibition against the mixing of matters religious and matters philosophic."[4] Moscow University Professor Yuri Melvil opined that "Peirce's mind was tortured by the insoluble contradiction between scientific vocation and religious consciousness."[5]

Michael Raposa, however, asserted the opposite conclusion. Religious ideas were essential to the development of Peircean philosophy. In spite of being immersed in science, Peirce never set aside religion. It was always present in his mind. Peirce's religious insights can and do appear anywhere, in mathematical and scientific papers as well as his strictly philosophical writings. This is partially because he thought with his pen; but he also discovered the important relations

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[2] Cf. C. HARTSHORNE, "A Critique of Peirce Idea of God," *Philosophical Review* 50 (1941): 516-523.

[3] Cf. T. GOUDGE, *The Thought of Charles S. Peirce*, Toronto University Press, Toronto 1950, pp. 295-325.

[4] M. MURPHEY, *DPP*, p. 42.

[5] Cf. Y. MELVIL, "The Conflict of Science and Religion in Charles S. Peirce's Philosophy," *TCSPS* 2 (1966): 33-50.

where others have perceived only discontinuity.[6] David Pfeifer has discovered 325 references to religious topics in 40 different places in the *Collected Papers*.[7] Peirce, indeed, was not only a man of science. He remained a religious man until the very end of his days. Peirce was convinced that "*all reality* is due to the creative power of God" (*CP* 6.505), that theoretical science is "simply and solely the knowledge of God's truth" (*CP* 1.239), and that for the support of the social order and morality "the great catholic church[8] is wanted" (*CP* 6.443).

3.1. Peirce's Early Concept of Faith

Religious questions captivated Peirce since childhood. It has always been at the back of his mind. He continually asked questions about the nature of God or of the Infinite, and about the cognitive status of any religious conceptions. Among Peirce's early expressions of his religiosity was a prayer he composed when he was twenty. In it he showed that even his religious sensibility had a scientific accent. Solemnly declaring

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[6] Cf. M. RAPOSA *PPR*, pp. 4-6.

[7] Cf. D. PFEIFER, "Charles Peirce's Contribution to Religious Thought," *Proceedings of the C. S. Peirce Bicentennial Congress*, Ketner, K. et al (eds.), Texas Tech University Press, Lubbock 1981, pp. 367-373.

[8] Peirce was not referring here to the Roman Catholic church, instead to a Universal Church were every particular church can have a place and participate on it.

his religious and moral commitments, he found no higher form of expression than to equate them with the assumptions and objects of scientific inquiry. He earnestly implored:

> "I pray thee, O Father, to help me to regard my innate ideas as objectively valid. I would like to live as purely in accordance with laws as inert matter does with nature's. May I, at last, have no thoughts but thine, no wishes but thine, no will but thine. Grant me, O God, health, valor and strength. Forgive the misuse, I pray of thy former good gifts, as I do the ingratitude of my friends. Pity my weakness and deliver me, O Lord; deliver me and support me" [9]

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[9] C. S. PEIRCE, *W* 1.7, 1859. In 1866, Peirce also discussed about prayer: "With reference to this conception of the deity it may be asked whether such a God would be a God of Prayer. Here it is necessary to make a distinction between what I shall call spiritual and mechanical prayer. I may illustrate this distinction by a comparison with the prayer of the child to its earthly father. Suppose a child to get on its father's knee and ask to be loved. That would be an instinctive motion connected with an emotion and would certainly find a response in the father's breast. Suppose, again, that a child were to come and make a long harangue to its father, requesting that he would not neglect his paternal duties but would exercise a proper superintendence over its discipline and education, would see that its masters were proper persons and in particular were to take it away from a certain school which the father must already know perfectly well to be an unfit place. In an earthly father, this would scarcely meet with a respectful hearing. With reference to a prayer of the first kind, there can be no doubt that it would find its interpretant in the divine symbol, being an emotion full of truth. An answer it would also receive through the proper chain of material necessary antecedents. On the other hand, the question of the efficacy of the second kind of prayer is altogether a question of fact. It admits a rigid solution, by observation —and ought to be submitted to

The phrases might sound comically ironic or even impious when compared to the lyrical verses of most prayers for divine support and favor, but his words had no such implications in his mind. Although Peirce escaped Prayers in school, as I have mentioned before, he was already religious at this age and had great passion for logical thinking. Peirce interest in mathematics and science was so intense that it animated all his thinking and outlook of the world.

In "An Essay on the Limits of Religious Thought Written to Prove that We can Reason upon the Nature of God" (*W* 1.37-43, 1859),[10] Peirce argues that some notions, such as the idea of God[11] are literally unthinkable and cannot immediately be present in the mind, but they can nevertheless be represented and can therefore be thought of. During this

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methodical examination. The prophets of old, if we are to believe what is written had faith enough to submit their praying to the test of experiment —and miracles were wrought with no other object. Now, of course, the answering any such prayer as a prayer for the rain, is a miracle. No one can deny that. (...)" (*W* 1.504)

[10] This essay seems to be Peirce's reaction to a book published in 1858 entitled *Limits of Religious Thought* by Henry Longueville Mansel. It is included together with *Metaphysics* by the same author in the list of books Peirce had during that period. (Cf. *MS* 1556, 1866).

[11] Peirce did not really use the term God in this essay, he used Infinite.

period Peirce was studying Kant thoroughly. This indicates Peirce's dissatisfaction with Kant's solution.[12]

In "Treatise on Metaphysics" (*W* 1.57-84, 1861-62), Peirce writes his earliest notion of faith, a notion which significantly foretells his later doctrine of belief and yet has unjustly, received inadequate attention from most of Peirce scholars. Peirce's characterization of the nature of faith consist of two parts: one is about what faith is not; and the other what faith is. For the first part Peirce writes:

> "(1) It is not a purely intellectual principle; it is unaccountable impulse to confide in certain truths. (...) (2) Faith is not peculiar to or more needed in one province of thought than in another. For every premiss[13] we require faith and nowhere else is there any room for it. (...) (3) There is no such thing as having immediate faith in the statements of others, be they men or angels or what. For whenever we believe statements, it is *because* there is something in the fact itself which makes it credible or *because* we know something of the character of the witness. (...) To believe without any such 'because' is mere credulity."[14]

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[12] Even so he continued to consider Kant a great logician after all, Peirce thought only Kant and Aristotle had realized that logic was the key to philosophy.

[13] In *CP* 2.582, Peirce explain reason of the use of the term "premiss" instead of premise.

[14] C. S. PEIRCE, *W* 1. 78, 1862. Italics his.

At first glance, these characterizations seem to be negative in nature. Nevertheless, they altogether do have positive implications. In the first place, Peirce tries to explain the non-existence of immediate faith.[15] Therefore his last characterization of what faith is not (3), indicates that accepting a statement on faith is equivalent to having a belief about it. In this case, "faith" and "belief" are interchangeable in some contexts. It also indicates that faith, being different from credulity, is not irrational at all. When one believes a statement, there must be some reason for his adherence to that statement. At this point, Peirce has not developed yet his conception that the reason might be external or internal. In a later essay, Peirce emphasizes that to satisfy our doubt, our belief should be caused by something external.[16] An external reason is the fact that makes what is believed credible, but in Peirce, it need not be known by the one who holds the belief. An internal reason is what is known by the belief-holder as a justification of his belief. However, the gist of Peirce's point is quite clear: faith is always based upon some reason, external or internal. Murphey mistakenly holds that the acceptance of a statement on faith indicates that it cannot be justified on rational grounds.[17]

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[15] Peirce uses the word "belief" instead of "faith."

[16] Cf. C. S. PEIRCE, *W* 3, 253, 1877.

[17] Cf. M. MURPHEY, *DPP*, p. 27. Murphey's claim may be due to his unawareness of Peirce's distinction between faith and credulity.

As Peirce expresses it in his first characterization, faith also contains a non-intellectual element. Peirce observes that there are people who "are over anxious about the details of evidence of religion." But he reminds us that "belief still depends on an internal impulse. Because some things we should not believe though the angel Gabriel told us, while true religion is instinctively accepted by the ingenuous mind."[18] It seems that Peirce wants to convey that faith is always accompanied by an unusual impulsive feeling of conviction not only in the issue of religion. This point somewhat give rise to "sensational belief" developed later in "Questions on Reality" and "Questions Concerning Certain Faculties Claimed for Man."[19] The description of faith as "an unaccountable impulse to confide in certain truths" does not signify that the belief truths in themselves are unaccountable. What is unaccountable, Peirce seems to express, is the instinctive feeling of conviction which always accompanies faith. So the apparent inconsistency of the first with the third characterization is proven false.

In the second characterization, when Peirce asserts that we require faith for every premiss, he assumes that the premiss in question is understood in the context that a set of relevant premisses can be used to provide epistemic justification or proof for its conclusion. For that purpose, every premiss must

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[18] C. S. PEIRCE, *W* 1. 78, 1862.

[19] Cf. C. S. PEIRCE, *W* 2. 171, 1868 and *W* 2. 205, 1868.

be supposed to be believed, if not known to be true, otherwise it cannot be qualified for offering the justification. Peirce illustrates this by his criticism of Kant's drawing the distinction between knowledge and faith. At this early he was already entertaining doubts already about Kant's noumenon. Peirce rejects the knowledge-faith dichotomy. He discards the idea that knowledge and faith are mutually exclusive, as well as the view that there are objects of faith which are not and cannot be objects of knowledge. "Wherever there is knowledge there is Faith. Wherever there is Faith (properly speaking) there is knowledge."[20] For Peirce every known judgment is accepted on faith.

The second part of Peirce's characterization of the nature of faith are stated without any elucidation. Although written positively, it seems to be obscure:

> "Faith is: (1) the recognition by consciousness of itself. It is the strength of the faculty by which abstractions are conceived. (2) It is hearing of the testimony of consciousness, which develops [sic] into trust in every man till there is reason for distrust and a spirit of obedience to the law of God. (3) It is the vigour of that part of mind which is the communication with the eternal verities. By this mountains are moved."[21]

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[20] C. S. PEIRCE, *W* 1. 78, 1862.

[21] C. S. PEIRCE, *W* 1. 78, 1862.

The first and third characterizations indicate that being a feeling of convictions of verities (truths), faith pertains to consciousness and can be recognized by consciousness itself. There is a similarity to Peirce's later notion of belief. It has the same character, since he asserts that the property of belief is that "it is something that we are aware of."[22] In the second characterization, Peirce holds that faith tends to be persistent over time unless there is reason for distrust (casting doubt) on it. This habit-like character is emphasized in Peirce's later theory of inquiry. This present notion of faith is similar to the later notion of belief, but their difference should not be neglected. The former explicitly has a sort of religious implication, which, by no means, is manifest in the latter. Likewise, although faith is regarded as a feeling of believing and as having the nature of habit, thus in these aspects it is quite similar to the notion of belief, Peirce does not connect it with our actions. Such a connection is important in his later notion of belief.[23]

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[22] C. S. PEIRCE, *W* 3. 263, 1878.

[23] In his article "Fixation of Belief," Peirce writes " (...) the feeling of believing is a more or less sure indication of there being established in our nature some habit which will determine our actions" (*W* 3. 247, 1877). The role played by the determination of action is incisive because it is the essence of belief. "The essence of belief is the establishment of habit," Peirce claims, "and different beliefs are distinguished by the different mode of actions to which they give rise" (*W* 3. 264, 1878).

What Peirce is attempting here is to make room for faith as an essential part of the knowing process. Peirce was unsatisfied with solutions which would assume a scientific and philosophical truth on one side, with a religious and moral truth on the other side. Faith has to be reasonable, and reason could be tested by its correspondence with faith's practical expression.

3.2. The influences on Peirce's religious beliefs

Peirce grew up in a Unitarian home where religion was taken seriously and science was taken as the study of God's works,[24] but where dogma and religious differences were taken lightly. After graduation from college and before his first marriage, Peirce joined the Episcopalian church. His early writings show little direct influences of Unitarianism, since he was already in deep study of Kant and by 1862 had joined the Trinitarian Episcopal church and remained a communicant until the end of his life.

3.2.1. Benjamin Peirce and Unitarianism

Charles S. Peirce as a boy, idolized Benjamin Peirce, his father and he was greatly influenced by the elder Peirce's beliefs. Benjamin Peirce was a deeply religious man of the Unitarian school. In the beginning, the elder Peirce was against the theory of evolution in any form, but he was a good

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[24] Cf. M. MURPHEY, *DPP*, pp. 13-16.

scientist to ignore the evidence disclosed by the adherents of this theory. So gradually, he accepted the nebular hypothesis, a type of pre-Darwinian cosmic evolution. Benjamin Peirce related to a friend that he was free to admit that the farther he extended his research into the physical universe, the stronger it appeared to him the evidence that the process of creation was conducted by a Divine Geometer. He postulated the disorder in the beginning of time with a perfectly homogenous distribution of matter and energy that an exertion of any force by the Creator will cause the process of nebular evolution from which stars and earth evolved. But the evolutionary process is still governed by mechanical laws. He postulated further that this evolution was paralleled by a spiritual evolution tied to it by a pre-established harmony. Contrary to the affirmation of the Spencerian and materialist theory, mind could not be reduced to matter, since mind and matter are basically different in kind. Mind and matter are related by the pre-established harmony; but mind is free from mechanical causation which guaranteed the correspondence between its ideas and reality. The elder Peirce believed that every theorem of mathematics is realized somewhere in nature, and that all nature is but the realization of our mathematical ideas. The discovery of the true structure of reality was a religious duty and since the harmony of mind and matter was preordained, results were destined to lead to a final truth or to the revealed order implanted by the Divine Geometer.[25]

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[25] Cf. M. MURPHEY, *DPP*, pp. 13-15.

Peirce acquired his father's perception of the natural world as the manifestation of a divine ideal. "The universe is a vast representamen, a great symbol of God's purpose" (*CP* 5.119). His definition also of theoretical science as "simply and solely knowledge of God's truth" (*CP* 1.239) can be traced clearly from the depiction of the elder Peirce's scientific inquiry as a religious vocation. Doing science for Peirce, as for his father Benjamin, was a paradigmatic form of religious activity. In their view, the scientist was ideally equipped to interpret the universe as an art work of divine inspiration.[26] As a young man, he adopted many of his father's views concerning religion and the relation between science and religion. Peirce saw no incompatibility between his scientific orientation and his religious belief. In fact, he saw them as mutually supportive.[27] He attached a special religious significance to the investigation of scientists. "God's wisdom and mercy (...) which was poetically divined shall be scientifically known" (*W* 1.114), declared Peirce in his first public appearance as a philosopher at the age of twenty-four before the Cambridge High School Association.

Peirce and his father developed a powerful intellectual relationship that was rooted and sustained by the continuous exchange of ideas. This had a profound impact on Peirce as a

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[26] M. RAPOSA, "Peirce and Modern Religious Thought," *TCSPS* 27 (1991): 349.

[27] C. DELANEY, "Peirce on the Hypothesis of God," *TCSPS* 28 (1992): 725.

boy and as a young man. Michael Raposa says that although Peirce's metaphysical idealism is different from his father's dualistic theory of the world as a pre-established harmony of matter and mind, Benjamin's emphasis on the mind-like quality of the physical universe clearly supplied a creative driving force for his son's reflections. The nebular theory that Benjamin defended and explained in theological terms can reasonably be interpreted as the forerunner of Peirce's evolutionary cosmology.[28]

Peirce shared his father's confidence in the ability of human reason, if properly exercised, to acquire religious knowledge. He explicitly adopted his father's quest for the supernatural truths in the natural world. Although the elder Peirce's Unitarianism and natural theology left a large impression on his son, Peirce could not adopt the particulars of his father's faith. He followed his father in many things, but he did not adhere to Unitarianism. He was raised as a Unitarian, but he converted himself to Episcopalianism, which is Trinitarian, before his first marriage. He would recall in later years, "I despised the Unitarians, because all through my boyhood I heard in my Unitarian family nothing but angry squabbles between Calvinists and Unitarians, and though the latter were less absurd than the former, I thought their church was based

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[28] Cf. M. RAPOSA, *PPR*, pp. 7-9.

on denial and when I grew up, I joined the Episcopal church (...)"[29]

3.2.2. Ralph Waldo Emerson and the Concord Transcendentalism

The Enlightenment of the 17th and 18th centuries stressed reason and science. Late in the 18th century there occurred a sweeping revolt against this Age of Reason. The revolt, named Romanticism, turned against science, authority, order, and discipline. One segment of the romantic era flourished briefly in New England under the name transcendentalism. When Charles S. Peirce was born, the New England community was in the thick of the transcendentalist movement as well as the elevated political crises that preceded the Civil War. Some of the Transcendentalists were family friends: Emerson, Hawthorne, and Margaret Fuller, who were members of the Saturday Club like his father.[30] Late in life, he would recall in a letter to Lady Welby the presence of these personalities in their house during his boyhood.[31]

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[29] In a letter by Peirce to Smith dated July 25, 1908 as quoted by M. MURPHEY, *DPP*, p. 15.

[30] Aside from the above mentioned, Orestes Brownson, Theodore Parker, James Freeman Clarke, Henry David Thoreau and Jones Very, Elizabeth Palmer Peabody, Bronson Alcott, and George Ripley composed the Transcendentalist movement in New England.

[31] Cf. C. S. PEIRCE-V. WELBY, *SS*, p. 114.

Ralph Waldo Emerson (1803-1882) was born in Boston on May 25, 1803. He was a son of the pastor of the First Church in Boston. He entered Harvard College when he was 14 and graduated when he was 18. Health problems interrupted his stay in the Divinity School in Cambridge but was "approbated to preach" in 1826. In 1829 he was ordained and was appointed minister of a large Unitarian church in Boston. After a preaching stint in the churches of Boston, Georgia, Florida, and other towns of New England, distinguished by the sincerity and directness of their language and ethical rather than, theological content, which charmed the young members of the congregation,[32] doubts entered into his mind. He was uncomfortable over prayer and commented that to be a good minister it was necessary to leave the ministry since the profession is antiquated.[33] He also suffered from doubts about church doctrine and felt that he could no longer administer the Lord's Supper. In 1832 he resigned from his pastorate, explaining, "It is my desire to do nothing which I cannot do with my whole heart."[34] So, he formally broke from the Unitarian Church and the ministry in general.

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[32] Cf. P. DERRICK-J. LÓPEZ GAVILÁN (eds.), *Ralph Waldo Emerson: The Intellectual American (texto bilingüe)*, Servicio de Publicaciones de la Universidad de León, León 1993.

[33] Cf. M. VAN DOREN, "Ralph Waldo Emerson," *Dictionary of American Biography*, vol. 3, pp. 132-141.

[34] Excerpted from *Compton's Interactive Encyclopedia*, Compton's NewMedia, Carlsbad 1995.

Emerson turned to lecturing and in 1836, he published his own first book —*Nature*.[35] It was the first announcement of New England's transcendentalism. He believed that great truths come by intuition that is, that they come unbidden. Furious striving avails nothing; truth comes gently. Most modern philosophers do not agree with Emerson; they think that truth may be reasoned. They are also interested in the working out of truth in relation to life, while Emerson was always on the alert for the first glimmer.

How are people to arrive at truth? Emerson gives his answer in his essay, "Self Reliance": "To believe your own thought, to believe that what is true for you in your private heart is true for all men that is genius. Speak your latent conviction and it shall be the universal sense; for always the inmost becomes the outmost and our first thought is rendered back to us by the trumpets of the last judgment." "God is in every man." The last phrase is the keynote of what is called the transcendental movement, or that faith in the inner light of which Emerson was the chief exponent.

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[35] The writings of Emerson, considered the most inspirational pieces of American literature, were standard materials in English literature classes in my high school days. In the matter of style he stands supreme for his power of saying much in little. Every sentence seems as good as the one it follows. This is true of his poetry as well as his prose; in both he showed the power of stating truth in sharp relief. His poems are ranked among the greatest ever written in America. It is only now that I realized that behind it was a philosophical doctrine too un-Christian to follow.

Transcendentalists believe in the essential unity of creation, the goodness of humanity, and the supremacy of insight over logic and reason. Common also was a renunciation of authority, whether religious, scientific, or political. Emerson remarked: "Nothing is at last sacred but the integrity of your own mind." Transcendentalism developed into a rejection of the whole established order. In this it was in harmony with the frontier spirit of the young United States, a spirit that insisted that people could, by determination and intuition, make a new society for themselves not bound by the constraints of the past.[36]

Peirce's exposure to Concord Transcendentalists, probably antedates his reading of philosophy. His earliest list of his books compiled in 1858 include various works of Emerson.[37] Emerson was among the literary authors preferred by Peirce quoting him or reading him aloud in the Century Club. Lines of Emerson like, "Men are exalted creatures," "instinct is to be obeyed," and more could have long reverberation in Peirce. Of Emerson, Peirce said that "his address in the early forties greatly impressed me, for it was not necessary to understand Emerson or to have more than a slightest contact with him to be greatly impressed."[38] Transcendentalism was then the talk

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[36] Excerpted from *Compton's Interactive Encyclopedia*, Compton's NewMedia, Carlsbad 1995.

[37] C. S. PEIRCE, *MS* 1555, 1858.

[38] C. S. PEIRCE, *MS* 296.

of the town. Among the transcendentalist doctrines that Peirce could have adapted unconsciously were the coherentist notion of the beautiful and the perspective of evil. Michael Raposa sees an identical similarity of Peirce's conception of beauty with Emerson's in the latter's essay on *Nature*, so with Peirce's perspective of evil with Emerson's notion of compensation.[39] Murray Murphey adds that Peirce agreed with Emerson's three famous propositions a) that words are signs of natural facts, b) that particular natural facts are symbols of particular spiritual facts, and c) that nature is the symbol of the spirit. Peirce's unpublished essay, "A Guess to a Riddle," which appeared in print in fragmentary form in the *Monist* series of 1891-1893, referred to the riddle of the sphinx in Emerson's poem "The Sphinx."[40]

But in his essay, "The Law of Mind,"[41] a by-product of the ideas formulated in "Guess to a Riddle," Peirce denounced his rejection of the "monstrous mysticism of the East," an infection he detected in the writings of Schelling, Emerson and other transcendentalist:

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[39] Cf. M. RAPOSA, *PPR*, pp. 87, 107.

[40] Cf. M. MURPHEY, *DPP*, pp. 50s, 321.

[41] C. S. PEIRCE, *CP* 6.102-163, also published in C. S. PEIRCE, *The Essential Peirce: Selected Philosophical Writings*, vol. 1, N. Houser-C. Kloesel (eds.), Indiana University Press, Bloomington 1992, pp. 312-333.

> (...) I have begun by showing that *tychism* must give birth to an evolutionary cosmology, in which all regularities of nature and of mind are regarded as products of growth, and to a Schelling-fashioned idealism which holds matter to be mere specialized and partially deadened mind. I may mention, for the benefit of those who are curious in studying mental biographies, that I was born and reared in the neighborhood of Concord, -I mean in Cambridge,- at the time when Emerson, Hedge, and their friends were disseminating the ideas they caught from Schelling, and Schelling from Plotinus, from Boehm[e], or from God knows what mind stricken with the monstrous mysticism of the East. But the atmosphere of Cambridge held many antiseptic against Concord transcendentalism; and I am not conscious of having contracted any of that virus. Nevertheless, it is probable that some cultured bacilli, some benignant form of the disease was implanted in my soul, unaware, and that now, after long incubation, it comes to surface, modified by mathematical conceptions and by training in physical investigation.[42]

In that same year of 1892, he admitted a strong connection. In response to Paul Carus' characterization of him as a modern Hume, he declared, "the truth is I am a sort of Schillengian, or New England Transcendentalist (...) (*MS* 958). Peirce is making here an irony, what he wants to convey is the contrast he wanted to draw between his own beliefs and attitudes and that of Hume. However, he characterized

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[42] C. S. PEIRCE, *CP* 6.102, 1892.

himself in 1859: "List of Horrid Things I am: Realist, Materialist, Transcendentalist, Idealist" (*MS* 921).[43]

According to Phillip Wiener, Peirce was also critical of both the pseudoscientific proofs of immortality and the dogmatic rejections of all religious aspirations like the vague commitments of the romantic transcendentalists of the Concord School.[44]

3.2.3. F. Schiller and I. Kant[45]

Peirce listed Johann Christoph Friedrich von Schiller as one of the authors who had helped to form his thought on the

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[43] Donna Orange said that there is a difficulty in identifying transcendentalism of the Concord kind in Peirce's early writings for reasons that he was also studying Kant at this moment of time. Peirce's use of the terms transcendental and transcendentalist, in his early manuscripts, referring to Kant's philosophy. Peirce may at least for a time, according to Orange, have regarded Kant as the legitimate forerunner of the Concord Transcendentalists. See D. ORANGE, *Peirce's Conception of God: A Developmental Study*, Institute For Studies in Pragmaticism, Lubbock 1984, p. 2. *PCG* from here on.

[44] C. S. PEIRCE, *Charles S. Peirce: Selected Writings (Values in a Universe of Chance)*, P. Wiener, (ed.), Dover Publications, New York 1966, pp. 345-350.

[45] The names of Sir William Hamilton, Thomas Reid, Henry Mansel, and David Hume appeared also in the manuscripts of this period. But I shall not go into details of what particular idea from each one of them may have influenced Peirce.

question of ultimate purpose.[46] In a manuscript Peirce recalled also that his work in philosophy had begun with the study of Schiller's *Aesthetische Briefe*, "a very good book for an infant philosopher" (*MS* 310, 1903), a recognition that it had an important influence in the early development of his thought. Donna Orange postulated that Schiller's insistence that feeling and reason are separate domains of human experience may have inclined Peirce toward his lifelong belief in a role for instinct and sentiment in moral and religious matters. Peirce's use of the terms, "Absolute" and "Infinite," in his early writings as references to God were influenced by Schiller's book.[47] Beauty, esthetic ideals, and feelings, not mere facts, are needed for moral education. Peirce's insistence of the importance and the religious character of an esthetic ideal most probably are from Schiller also. In a letter to Lady Welby he mentions that *Aesthetische Briefe* also contains an emphasis on the role of play and the play-impulse in the search for truth.[48]

Since Schiller's favorite philosopher was Immanuel Kant, Peirce's step to Kant's *Critique of Pure Reason* seemed to be

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[46] C. S. PEIRCE, *CP* 5.402n, 1906. The others were Josiah Royce, Henry James, Sr. and Swedenborg.

[47] D. ORANGE, *PCG*, p. 4.

[48] C. S. PEIRCE-V. WELBY, *SS* 77, 1908.

a natural one. He told Lady Welby that he learned it by heart.[49] In 1898 he recalled:

> I came to the study of philosophy not for its teaching about God, Freedom, and Immortality, but intensely curious about Cosmology and Psychology. In the early sixties I was a passionate devotee of Kant, at least as regarded the Transcendental Analytic in the Critic [sic] of the Pure Reason. I believed more implicitly in the two tables of the Functions of Judgment and the Categories than if they had been brought down from Sinai.[50]

Peirce has some reservations about Kant's *noumenon* nor does he accepts Kant's distinction between knowledge and faith as a dichotomy according to which knowledge and faith are mutually exclusive.[51] He was dissatisfied also with Kant's solutions and struggled with the latter's categories upon his early speculations.

Detailed analysis of Peirce's study on Kant's categories is beyond the scope of this study. I will just take a look at its early development to see whether Kant's ideas influenced Peirce's religious beliefs. In a manuscript of 1859, Peirce began by asserting that we can reason about anything we can define, whether or not such a thing exists in imagination or in nature. He claims that many things we can never comprehend

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[49] Cf. C. S. PEIRCE-V. WELBY, *SS* 114, 1908.

[50] C. S. PEIRCE, *CP* 4.2, 1898.

[51] Cf. C. S. PEIRCE, *W* 1. 72-78, 1862.

can be given intelligible definitions. Then he proposes to explain how the infinite might be defined, if not conceived as a simple idea of resulting from the intersection of complex and crossing relations. Then Peirce makes a list of triadic categories from which might emerge a definition of the infinite:

> Every dependency has one of three necessary modes. The first is community. (...) The second necessary mode is causality, which is the mode of dependence everything at each moment has upon things at the last moment. The third necessary mode is influx which is the mode of dependence substance to form, character to acts, things to qualities.[52] (...) all modality what ever has one of three perfect degrees. The first is Possibility; this is where we merely think a thing and it really exists in no mode whatever. The second perfect degree is Actuality; this is where the thing is or occurs. The third perfect degree is Necessity; where it could have not been otherwise. I call these *perfect* degrees (...). all degree whatsoever has one of three successive stages. The first is nullity, the second positivity, and the third Perfection. (...) all stage whatsoever has one of three temporal expressions: Retrogression, Contemporaneity, succession. There are three formal intuitions of expression: Consciousness, Space, Time. There are three total quantities of intuition: Notion, substance form. There are three

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[52] Influx was a term use during his time in diverse sense, most of which has something to do with a flow of some kind of spiritual influence into a mind or body. In Peirce usage at this stage, is a kind of perfection (*MS* 921, 1859) and a little bit later to refer to God (*MS* 859, 1859).

> infinite qualities of quantity: unity, plurality, totality. Infinite because possessed beyond limitation. Lastly there are three Influxual dependencies of quality viz.: Negation, Reality and Infinity.[53]

Buzzelli said that Peirce shifted early to a material conception of the categories,[54] so infinity or the nature of God can be an object of thought, and faith need not be unreasonable at all. Peirce, with his quasi-Kantian system of categories, diverged from Kant in locating God or infinity within the categorial system. He apparently had exactly this point in mind: "I have run through the categories in this way in order to show precisely what infinity is and where in the scheme of conceptions it stands" (*W* 1.39).

Since infinity is a source of influx, then it can be thought of, therefore it is a thing. "The Conception of Infinity" (*W* 1.40-42) explains that the theory is realistic even if infinity is not exactly a thing or a quality. It explains further what Peirce meant by infinity as "influxual dependency of quality":

> What is infinity? It is not the conception of a thing, neither is it the conception of the quality of a thing. If we can think of a good man, it is because in the first we have a notion of a man and in the

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[53] C. S. PEIRCE, *W* 1.38f, 1859.

[54] Cf. D. BUZELLI, *The 'New List of Categories': a Study in the Early Philosophy of Charles S. Peirce*. (Doctoral dissertation, Fordham University, New York 1974), p. 7.

> second place we have the conception of good and in the third place we can combine one conception with the other. When this is done, I express the synthesis by saying that an influxual dependence of *good* upon *man* is conceived of. Influxual dependence has three degrees. 1st it may be negative as when we say *the man is not good.* 2nd it may be real as when we say *the man is more or less good or pretty good or very good,* in short we say that he has goodness in degree, and 3rd it is infinite when we say *he is perfectly good.* Then he has the goodness beyond degree. Infinity then is only to be predicated of qualities and only of qualities conceived to be possessed. We can therefore analyse the conception of infinity, we can state its relations to other conceptions although the conception itself we never have.[55]

This is a clear rejection of Kant's view that the question of the nature of God (here the Infinite) is outside the competence of reason and must be left to faith. On the contrary faith and reason may agree about the infinite. Peirce presents his allegations that when a thing influences the soul its effect comes into the field of consciousness as an unconscious idea. In faith the infinite does not influence the soul as infinite, therefore we have an unconscious idea of it and this is where infinite belongs.[56] Peirce thought that both faith and reason are necessary in all thought: "Faith is not peculiar to or more

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[55] C. S. PEIRCE, *W* 1.41, 1859. Italic his.

[56] Cf. C. S. PEIRCE, *W* 1.42, 1859. Peirce's use of "unconscious" probably to mean not fully definite but nonetheless real and efficacious.

needed in one province of thought than in another. For every premiss we require faith and nowhere else is there room for it. This overlook by Kant and others who draw a distinction between knowledge and faith" (*W* 1, 78). When Peirce claims in these early writings to be able to reason about the infinite, and hence the infinite is in some way part of the categorial system, he was claiming that he can reason also about God.

Although Peirce disagrees with Kant's leaving behind reason for the conception of God, he accepts the latter's view of reasoning as the imposition of some kind of unity on a sensory manifold. Thus reasoning about the infinite may be equivalent to reasoning about phenomena: "The noumenon tree we can never know. The phenomenon of God we can always apprehend. If this simple distinction be kept in view, where is the puzzle, where is the contradiction of the infinite and the absolute?"[57] Consequently, it was Peirce's rejection of a world in itself which reasoning cannot reach that led him to include the infinite within the universe governed by the categories (he even at times makes the infinite itself a category). Kant led Peirce to assert the knowability of God, from which in turn Peirce would develop his conception of God. In later years Peirce would hold the idea of God (though not of the Infinite) to be intrinsically vague but full of pragmatic importance hence discernible.

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[57] C. S. PEIRCE, *MS* 921, 1859.

Although Peirce disagrees with Kant in this particular matter, it did not stop him from studying the logic of Kant's categories which led him to label his metaphysical standing as Realistic Pantheism:

> Realistic Pantheism: From Idealism, it follows that nothing exists which is not thinkable as thought. From Materialism, it follows that nothing but the unthought exists. That which being unthinkable is of thinkable as thought is Perfection. In chapter III of the Introduction it was shown that Perfection is God. Hence, nothing exists but God.
>
> Here then we have three worlds Matter[,] Mind[, and] God mutually excluding and including each other, as I showed was possible (...).[58]

What is interesting in this triadic world of Peirce's Realistic Pantheism is that it does not only mutually exclude one another, but also include one another.[59] Each of the three worlds is both immanent and transcendent with respect to the other two, a very peculiar sort of pantheism. Furthermore, Peirce uses in these manuscripts "the perfect" or "perfection"

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[58] C. S. PEIRCE, *MS* 920, 1861.

[59] Peirce will hold to this mutual exclusion and inclusion of each other characteristic and apply it to his categories of Firstness, Secondness and Thirdness developed much later..

to replace "God."[60] Peirce was grabbling for a conception of God as the all, the completely whole, or the self-sufficient. "Nothing has a self dependent existence but the divinity" (*W* 1.66, 1862). In later period manuscripts, Peirce would define Perfection as "the state of degree of completeness, excellency that leaves nothing to be desired," absolute perfection as "the absence of every kind of defect and fault, the perfection of God." Essential or transcendental perfection he would define as "the possession of everything that is necessary to an essence."[61]

So from Kant, Peirce tried to make room for faith as an essential part of the knowing process to overcome the problems which result from restricting religion either to faith or to rational theology. With regards to the nature and knowledge of God, Kant had restricted God to the noumenal sphere which can be apprehended only by faith. Peirce on the contrary, saw faith involved in all inquiry since all cognition is inference. Insisting that whatever is can be known, he brought the noumena back into the realm governed by categories, and thus labeled himself a transcendentalist.

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[60] In another manuscript he says that perfection come in four varieties: totality, infinity, influx, and necessity.(Cf. *MS* 921,1859). If influx is taken to mean creativity of some type, the other three sound like the traditional descriptions of God.

[61] Cf. C. S. PEIRCE, *MS* 1166, undated. (Contributions to the *Century Dictionary*.)

3.2.4. The Fays and Episcopalianism

Harriet Melusina Fay, Peirce's first wife was an Episcopalian, whose father and maternal grandfather were Episcopalian ministers in Vermont. Zina was a brilliant, romantic, strong minded, and a puritan intellectual feminist. One summer in 1859, she was then twenty-three years old, she arrived at an interpretation of the doctrine of the Trinity. She experienced a religious conversion with the conviction that the Holy Spirit was the feminine element of the Trinity. She believed that in this Divine Eternal Trinity of Father, Mother, and Only Son. The feminine principle, the mother, was referred to by the Scriptures under the terms of «The Spirit», «Wisdom», «Holy Ghost», «The Comforter» and «the Woman clothed with the sun and crown with the stars and the moon under her feet».[62]

Apparently under the influence of his future wife, Peirce joined the Episcopalian church and became a Trinitarian in 1862. He remained a lifelong member of the Episcopalian church although they divorced later and he returned to it as a regular communicant from 1892 forward.[63] Orange wrote that after his confirmation, Peirce exhibited more concern for roles of religion and churches in the life and civilization, although it is not evident that his Episcopalian confirmation produced any

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[62] Cf. M. FISCH, "Introductions," *W* 1.xxxi.

[63] Cf. C. S. PEIRCE, *L* 483, 24-IV-1892.

immediate effect on his conception of God.[64] It started to appear in 1866 in one of the Lowell lectures he delivered where he revealed publicly his Trinitarian conceptions:

> "Gentlemen and ladies, I announce to you this theory of immortality for the first time. It is poorly said, poorly thought; but its foundation is the rock of truth. And at least it will serve to illustrate what use might be made by mightier hands of this reviled science, logic, *nec ad melius vivendum, nec ad commodus disserendum.*
>
> There is another important corollary which may be drawn from the law of symbols. As each thing has a symbol, so everything has its symbol. I do not mean the empty conception of *being*, the interpretant of absolutely undetermined feeling whose comprehension is *naught*; nor the blind conception of *substance*, the interpretant of absolutely undetermined attention. But that symbol whose information is all-embracing; which signifies every fact about everything, not contingently but necessarily. As every soul of man is a relative philosophy so this symbol is the absolute unattainable philosophy. This is the Creator of the World since all is necessarily conformed thereto. A personal being for the same reason that all symbols are personal, but also further the well-spring of all personality since only by virtue of this Law does the unity of consistency become part of the finite symbol. This infinite Symbol being necessary denotes not the contingent facts of the universe but the absolute law in all its detail and unity to which the

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[64] Cf. D. ORANGE, *PCG*, p. 12.

> universe is subjected, but this law is essentially identical with the Symbol since it is, like every fact, the symbol of itself. The interpretant of the symbol like every interpretant is also essentially identical with the symbol; and finally the ground of the symbolization or the comprehension of the symbol, since it completely determines the symbol in all respects, is also essentially identical with it.[65]

Fisch said that Zina's feminist version of the Trinity had a distant echo to Peirce. He based his claim on the 1907 draft of what turned out to be Peirce's best account of pragmatism with the framework of his general theory of signs: "A sign mediates between its *Object* and its *Meaning* (...) Object the father, sign the mother of the meaning." That is, Peirce might have added, of their son, the Interpretant.[66] Meanwhile, Brent suggests that Zina played an important part in Peirce's intellectual and moral life with her intelligence and force of character. He believes that their discussions of the Trinity and community influenced his thinking about categories of being and the nature of validity in science.[67] In Peirce's last Lowell lecture in the fall of 1866, he makes an implicit allusion to it:

> (...) Here, therefore, we have a divine Trinity of the object, interpretant and ground (...). In many respects this Trinity agrees

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[65] C. S. PEIRCE, *W* 1.502-504 Italics his.

[66] M. FISCH, "Introductions," *W* 1.xxxii.

[67] Cf. J. BRENT, *CSPL*, pp. 62-65.

> with the Christian Trinity; indeed I am not aware that there are many points of disagreement. The interpretant is evidently the Divine *Logos* or word; and if our former guess that a reference to an interpretant is Paternity be right, this would be also the *Son of God*. The *ground*, being that partaking of which is a requisite to any communication with the Symbol, corresponds in its function as the Holy Spirit (...).[68]

On the other hand, Vericat says that Peirce was culturally and philosophically an instinctive Trinitarian as shown in his school compositions.[69] Yet it is true that Peirce had a great sympathy to Frederic Dan Huntington, the preacher to the College Chapel and Plummer Professor for Christian Morals. It was under him that Charles in his freshman year studied Richard Whately's *Lessons on Morals* and *Christian Evidences*. Huntington was then a Unitarian. Huntington, and together with George Ellis, they spearheaded the religious revival that human religion depends on divine gift contrary to the Unitarian ethic of self-development.[70] On account of his Trinitarian beliefs and later conversion, he was forced to resign from Harvard in 1860.[71]

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[68] C. S. PEIRCE, *W* 1.503. Italics his.

[69] Cf. J. VERICAT, *WACSP*, p. 36.

[70] Cf. T. SMITH, *Revivalism and Social Reform*, Harper, New York 1957, pp. 97-102.

[71] Frederic Dan Huntington became the first Episcopal bishop of Central New York and lived in Syracuse.

3.2.5. Charles Darwin and the Evolution Theory

In 1859, when the book *Origin of Species* by Charles Darwin was published, Peirce was on a field survey as part of the team of Alexander Dallas Bache. As mentioned before in the previous chapters, Peirce studied the technique of classification due to the controversy that arose between the supporters of Darwin and Agassiz, who argued whether Biology or Chemistry is the chief classificatory science. Darwin's work did not only provoke the crisis in the scientific world; it likewise anticipated a severe religious crisis. *Origin of Species* threatened to undermine the orthodox theological anthropology, the Christian view of human beings. The continuity between human and other animal species seemed to conflict sharply with the Judaeo-Christian notion of persons as a special creation, given dominion by God over other living things.[72]

Donna Orange mentions some of Peirce interlocutors on this matter: his classmate, Asa Gray, who believed that religion and evolutionary theories were not necessarily opposed; and his Metaphysical Club mentor Chauncey Wright, who was an enthusiast of Darwin.[73] Nathan Houser explains that Peirce's philosophy does not consist of a set of static doctrines, thought up and written down once and for all; its development over his more than fifty of his scholarly

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[72] M. RAPOSA, *PPR*, p. 9.

[73] Cf. D. ORANGE, *PCG*, p. 12.

articles appropriately represents his Darwinian motivation. Not only did he think of himself as working out an evolutionary philosophy, or one that includes humankind as part of the evolving natural world; his writings also illustrates his natural commitment to the principle of evolutionary growth. Peirce was always open to the revelation of experience and was prepared to change his theories accordingly.[74]

According to Brent, Peirce believed that it was Darwin's theory of irreversible biological evolution which inaugurated the greatest mental awakening since Newton and Leibniz. While Peirce was deeply influenced by the evolutionism of Darwin and fully agreed with his idea of fortuitous variation, a process which he later called as "tychastic evolution," he never accepted the doctrine of natural selection as sufficient account for the evolution of mind, which he later proposed to be dependent on the gentle purposive action of love and named "agapastic evolution."[75]

Michael Raposa reports that *Origin of Species* framed the development of Peirce's world-view. Peirce was obviously sensitive to the conflict between science and religion that the Darwinian controversy both exhibited and helped to engender.

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[74] Cf. N. HOUSER, "Introduction," *The Essential Peirce: Selected Philosophical Writings*, vol. 1, N. Houser-C. Kloesel (eds.), Indiana University Press, Bloomington 1992, p. xxiii.

[75] J. BRENT, *CSPL*, p. 60.

Peirce did not try to explain away the difficulty or simply deny its reality. It is a conflict that he, as a man of science with deep religious convictions, clearly experienced personally. Peirce responded positively and creatively to Darwin's theory in a manner that is of no small theological interest. The principle of fortuitous variation interpreted in the light of Peirce's category of Firstness became one of the shaping influences on his "tychism" or, doctrine of objective chance. The doctrine, although balanced by other perspective, is a basic ingredient of his cosmology. On the other hand Peirce rejected the primacy of natural selection and labeled it as "the gospel of Greed" in favor of his agapistic theory of evolution for reasons that might at first seem to be more precisely religious —especially Christian— than scientific (*CP* 6.295). Peirce's religious and scientific concerns cannot be neatly separated sometimes from one another, however. He was fully aware of the problematic nature of relationship between them; but in general he construed the relationship in such a fashion that the essence or "spirit" of religion and that of science are not in opposition.

3.2.6. John Duns Scotus and the Scholastics[76]

Another notable influence was the medieval scholastics, specially Blessed John Duns Scotus. Peirce began in the middle to late 1860s reading Aristotle and the medieval scholastics.[77] These readings, especially in Duns Scotus and Thomas Aquinas, were mainly devoted to logical problems and to find an antidote to his difficulties with Kant. A heavy scholastic influence is apparent in his thought. Examining his writings from 1865 on, it contains an abundance of scholastic terminologies. "On a New List of Categories" is a product of this readings. Since Peirce was a observant reader, even though his main interest in these thinkers was in logic, he could have noted it that their main interest was in theological problems. He could have had familiarized with their formulations of these problems and with their methods of approaching them. John Boler said that Peirce writing after

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[76] It is evident in his writings that Peirce criticized some aspects of Scholasticism, but regarded the scholastics as great allies in his battle for the cause of realism. At the same time he complained that Duns Scotus inclines too much towards nominalism. I shall not touch here Peirce's criticisms to Duns Scotus and other Scholastics which many scholars have expounded already (e.g. R. Almeder, R. Goodwin, E. C. Moore, M. Murphey). Neither will I present here Peirce perspective from the moderate position of Duns Scotus and others labeling himself as an "extreme realist" nor the doubts of some group of scholars to brand Peirce as a Scotistic realist.

[77] Cf. M. FISCH, "Pierce Progress from Nominalism toward Realism," *The Monist* 51 (1967): 159-178.

this reading period do in fact indicate such familiarity, but show no propensity to adopt their solutions in any explicit way.[78]

Peirce claimed that the doctrines of medieval realists, especially Duns Scotus, had a great influence on the development and nature of his own thought:

> The works of Duns Scotus have strongly influenced me. If his logic and metaphysics, not slavishly worshipped, but torn from its medievalism, be adapted to modern culture, under continual wholesome reminders of nominalistic criticisms, I am convinced it will go far toward supplying the philosophy which is best harmonized with physical science. But other conceptions have to be drawn from the history of science and mathematics.[79]

Peirce's reading of the medieval philosophy in the 1860s provided the first creative impulse for the development of his logic. Duns Scotus convinced him that the proper object of logic was syllogism. Furthermore, the study of the syllogism ought to precede the study of the proposition since the only differences among propositions that are logically significant are those which affect their role as components of syllogisms.[80] Another thing that attracted Peirce to the

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[78] Cf. J. BOLER, *Charles Peirce and Scholastic Realism*, University of Washington Press, Seattle 1963.

[79] C. S. PEIRCE, *CP* 1.6, c. 1897.

[80] Cf. M. MURPHEY, *DPP*, p. 56-58.

Scholastics was their realistic position on the issue of universals.[81] He was convinced that modern science was just as realistic and as fundamentally opposed to nominalism as had been the philosophy of the Scholastics.[82] Peirce adopted Scotus' realism in his doctrine of synechism and its relationship to his objective idealism. He praised Duns Scotus as "one of the greatest metaphysicians of all times, whose ideas are well worth careful study, and are remarkable for their subtlety, and their profound consideration of all aspects of the questions (of philosophy)" (*CP* 4.28). Peirce acknowledged his indebtedness to Scotus for his concept of reality in numerous places in his writings: "The word reality is used in ordinary parlance in its correct philosophical sense. But it did not become at all common until Duns Scotus, in the latter part of the thirteenth century began to use it freely" (*CP* 6.495). It was Duns Scotus who brought the word "real" into common use. (*CP* 8.319). To Peirce, God is real, invoking what he perceived to be Scotus' notion of a reality as that which is what it is independently of what any mind or finite collection of minds may conceive it to be (*CP* 6.453).[83]

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[81] Almeder makes a comparison of Scotus' and Peirce's stand on the doctrine of universals on his book *The Philosophy of Charles S. Peirce: A Critical Introduction*, Rowman and Littlefield, Totowa 1980.

[82] Cf. E. MOORE, *American Pragmatism: Peirce, James and Dewey*, Columbia University, New York 1961, pp. 25f.

[83] Cf. M. RAPOSA, *PPR*, pp. 20, 124, 127 157.

Peirce appropriated also Scotus' notion of «haecceitas» in his analysis of individuality using it creatively and within the context of his synechism. In the definition he gave for individual in Baldwin's *Dictionary of Philosophy and Psychology*, «haecceitas», to Peirce, is

> (...) that which alone immediately presents itself as an individual is a reaction against the will. But everything whose identity consists in a continuity of reactions will be a single logical individual. Thus any portion of space, so far as it can be regarded as reacting, is for logic a single individual; its spatial extension is no objection. With this definition, there is no difficulty about the truth that whatever exists is individual, since existence (not reality) and individuality are essentially the same thing; and whatever fulfills the present definition equally fulfills the former definition by virtue o f the principles of contradiction and excluded middle(...).[84]

Furthermore, in his writings to develop his categories from within, he wrote

> (...) the qualities of the individual thing (haeccceity), however permanent they may be, neither help nor hinder its identical existence. However permanent and peculiar those qualities may be, they are but are *accidents*; that is to say, that they are not involved

[84] C. S. PEIRCE, *CP* 3.613, 1901.

in the mode of being of the thing; for the mode of being of the individual thing is existence.[85]

In short, for Peirce, the «haecceitas» itself is general while individual reaction-events remain irreducibly Seconds; individuality is a relative rather than absolute category. All individuals manifest a certain element of continuity, and thus of generality; they are determined as being individuals by specific law or habit that both accounts for their identity as "single logical individuals" and constitutes them as a "continuity of reactions." An absolute individual would be an irrational reaction-event deficient of intelligibility. A single logic individual, since it endures through time, is of a continuos nature. Its behavior is governed by a habit that causes it both to endure and continuously to manifest certain essential properties and modes of activity. To understand Peirce's religious thought, it is important to know that to him "individual are systems, and systems have essences, and essences are real habits or laws of behavior."[86]

Another scholastic influence can be found in Peirce's philosophy of the mind. Peirce adopted the Scotus' notion

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[85] C. S. PEIRCE, *CP* 1.458, 1896. See the discussion of Murphey's interpretation of Peirce on individuals on M. MURPHEY, *DPP*, pp. 398-399.

[86] Cf. M. RAPOSA, "Habits and Essences," *TCSPS*, 20 (1984): 161. (Raposa discussed also in this article Peirce's reflection on habit as efficient and final causation in relation to Scotus understanding of "quiddity.")

that ideas can exist in the mind «habitualiter».[87] During the development of his early philosophical system (1859-1861), Peirce formulated a theory of unconscious ideas, arguing that universal propositions are not derived from experience, but are innate. A theory he created in order to respond to the problem of dialectic and constitutes a kind of compromise between his Kantian and his romantic heritage. In this theory we are denied positive knowledge of God, but God directly influences our consciousness. We can apprehend God, although we cannot truly know God.[88] God's purpose in nature is readily visible, however, it is not always readily perceived. Peirce eventually rejected that God cannot be possibly known and affirmed that God has a direct influence on the human mind. Peirce looks at it more with the eyes of the heart than with reason, as demanded by philosophers. But this theory of unconscious ideas survived in a modified form in his theory of instinctive beliefs inspired by the Scotist notion that ideas can exist in the mind «habitualiter»:

> (...)There are two ways in which a thing may be in the mind, -- *habitualiter* and *actualiter*. A notion is in the mind *actualiter* when it is actually conceived; it is in the mind *habitualiter* when it can directly produce a conception. It is by virtue of mental association (we moderns would say) that things are in the mind *habitualiter*. In

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[87] Cf. M. RAPOSA, *PPR*, pp. 23s. He discussed also Peirce's theory of abstraction with Scotist's philosophical traces.

[88] Cf. M. MURPHEY, *DPP*, pp. 43-45.

> the Aristotelian philosophy, the intellect is regarded as being to the soul what the eye is to the body. The mind perceives the likenesses and other relations in the objects of sense, and thus just as sense affords sensible images of things, so the intellect affords intelligible images of them. It is as such a *species intelligibus* that Scotus supposes that a conception exists which is in the mind *habitualiter*, not *actualiter*. This species is in the mind, in the sense of being the immediate object of the knowledge but its existence in the mind is independent of *consciousness* (...).[89]

General conceptions exist in the mind «habitualiter»; while independent of consciousness, these habits of thought can, by operating as laws of mental association, directly produce a conception. To Peirce, "a belief need not to be conscious" (*CP* 2.148) as he conceived it as a "habit of the mind essentially enduring for some time and mostly (at least) unconscious" (*CP* 5.417). One can argue that belief cannot be regarded as genuine if it has no discernible or conceivable effect on one's behavior. But such an effect is not contingent upon one's having a clear and continuous awareness of what it is that one believes. Just like one's belief in God might consists in nothing more than a hidden tendency and yet, under the appropriate circumstances, still proves to have significant cognitive and emotional effects. Most probably this is what he had in mind when he wrote Lady Welby that "every

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[89] C. S. PEIRCE, *CP* 8.18, 1871.

true man of science (...) who does not explicitly recognize that he believes in God, —has Faith in God."[90]

Gordon Whitney ventures further to say that the relationship between the thought of Peirce and Scotus can be illustrated in the following topics: Scholasticism, psychology, individuation, cognition, intellect and will.[91] Peirce's mastery of Scotus was still also evident on the last years of his life as shown in some articles he contributed to *The Nation*.[92] Robert Almeder commented up to the extent that "without some extended discussion of Peirce's intellectual debt to the medieval philosopher Duns Scotus, it is unlikely that a thorough understanding of Peirce's philosophy is possible."[93]

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[90] C. S. PEIRCE-V. WELBY, *SS*, p. 75.

[91] Cf. G. WHITNEY, "Reason, Will and Belief: Insights from Duns Scotus and C. S. Peirce," *Living Doubt: Essays Concerning the Epistemology of Charles S. Peirce*, G. Debrock-M. Hulswit, (eds.), Klumer Academic Publishers, Dordrecht 1994, pp. 137-150.

[92] In Peirce's review of W. Turner's *History of Philosophy*: "(...) the Scotist, who is habituated to thinking of three modes of being"(See *N* 3.173-176), or his review of A. Fraser's *Berkeley's Works*: "(...) The doctrine that existence is not a form to be conceived, but a compulsive force to be experienced (which is prominent in Kant's refutation of Berkeley and of the ontological proof that there is God; and indeed everywhere). This was of British origin: it is the doctrine of Scotus" (See *N* 3. 36-39).

[93] R. ALMEDER, *The Philosophy Of Charles S. Peirce: A Critical Introduction*, Rowman and Littlefield, Totowa 1980, p. 161.

3.2.7. Henry James, Sr. and Swedenborgianism

In 1863 Henry James the elder published his book *Substance and Shadow: or Morality and Religion in their Relation to Life: An Essay upon the Physics of Creation.* Peirce had a copy of this book presented to him by Miss Maria Fay. Late in his life, he recalled in a letter to William James in 1897: "I am all alone in the house here and have spent some quiet hours over *Substance and Shadow* and in recalling your father. My experiences of the last few years have been calculated to bring Swedenborg home to me very often."[94]

Emanuel Swedenborg (1688-1772), was a Swedish scientist, natural philosopher, and mystical thinker. He was born Emanuel Swedberg on Jan. 29, 1688, in Stockholm, and when his family was raised to the nobility in 1719, the name was changed to Swedenborg. Son of a prominent clergyman, later bishop and professor of theology, he was an exceptional scholar, fluent in several languages and studied the classics and Cartesian philosophy at Uppsala where he graduated from the university in 1709. He got interested in mathematics and natural sciences, and anticipated many subsequent hypotheses and discoveries like the nebular theory, magnetic theory, the machine-gun, etc. For more than 30 years he was royal assessor of mines. He went abroad to further his studies and in

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[94] R. B. PERRY, *The Thought and Character of William James*, vol. 1, Little, Brown and Co., Boston 1935, p. 534.

England he got influenced by Henry More, John Locke, and Isaac Newton. He once explained the origin of the universe in a mechanical manner, abandoning it later to adopt the materialist view following the Neoplatonic teachings of the seventeenth-century Protestant mystics writing that the universe had a fundamentally spiritual structure. During this time he applied himself to discovering the nature of the soul and spirit by means of anatomical studies, studying in Paris, Venice and Rome.[95]

About 1744 Swedenborg underwent a religious crisis. The rest of his life was devoted to interpreting the Bible. He had a vision of a transformed Christianity that would win over the world, though his beliefs rejected a number of basic Christian teachings, adapting a Neoplatonic philosophy which admitted the historical Jesus Christ. He spent the rest of his life writing in defense of his doctrines and publishing his revelations characterized by vivid descriptions of his experiences in the spiritual world. Swedenborg taught the existence of spirits and angels but denies the Trinity and the vicarious atonement. He describes God as the invisible, spaceless, and timeless One as manifesting himself on Earth as Jesus Christ —the soul being the eternal father, the body the son of Mary, and the Holy Spirit, the action caused by the union of the two. Swedenborg also held that man's spirit lives after death

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[95] Cf. F. CROSS, "Swedenborg," *The Oxford Dictionary of the Christian Church*, F. Cross (ed.), Oxford University Press, London 1958, p. 1309f.

according to its earthly justification —good men gather in heaven, and the selfish seek their kind in hell. He also believed that the churches over the years had destroyed the original meaning of God's word and his mission was to restore to its primary sense. Swedenborg took this message foretold in the Scripture about the second coming of the Messiah and the foundation of the New Jerusalem. [96] Swedenborg did not try to win converts, neither did he attempt to found a new church separate from existing churches, rather a spiritual fraternity of all those whatever ecclesiastical allegiance who accepted his doctrines. What he wished was to propagate his doctrines in the existing churches. Swedenborg died in London on March 29, 1772. In his native Sweden and throughout Europe, he is remembered mainly for his outstanding scientific achievements, as brilliant in their own way as those of Leonardo da Vinci and an unusual reinterpretation of Christianity.[97] His followers founded the Church of the New Jerusalem based on his writings. His influence on 19th-century

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[96] J. ANTÓN PACHECO, *Un Libro sobre Swedenborg*, Secretariado de Publicaciones de la Universidad de Sevilla, Sevilla 1991.

[97] Excerpted from *Compton's Interactive Encyclopedia*, Compton's NewMedia, Carlsbad 1995.

writers was strong, but his reputation has faded in the 20th century.[98]

Henry James, Sr. was America's leading Swedenborgian and Peirce found the former's religious ideas more interesting than those of the theologians of his time.[99] As early as 1864, Peirce mentions Swedenborg in his logic examples.[100] He might have been reading him before the James family settled in Cambridge. Peirce met Henry James, Sr. in 1866 and began to spend time conversing with him. Peirce was admitted to the family circle and William James would be his closest and most comprehensive friend from then on until their death. Peirce became warmly attached also to the elder James. Peirce claimed that it was James Sr., through his book *Substance and Shadow* as well as through his conversations, that had helped him in understanding the ultimate meaning of truth (*CP* 5.402 n.3). In April 1870, Peirce reviewed the book written by Henry James, Sr. *The Secret of Swedenborg: being an Elucidation of his Doctrine of the Divine Natural Humanity* for the *North American Review*. He characterized the book as "interesting and impressive and affording much spiritual nutriment"(*W* 1.433-438). In a number of places in his

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[98] In the U. S. nowadays, there are two bodies of Swedenborgians, the original General Convention of the Church of New Jerusalem founded in 1817 and the General Church of the New Jerusalem founded in 1890.

[99] Cf. M. MURPHEY, *DPP*, p. 97.

[100] Cf. C. S. PEIRCE, *MS* 343, 1864-1865.

writings, Peirce makes a explicit references to Henry James, Sr.'s writings:

> (...) Thus, the love of God is, not love of which hatred is the contrary; otherwise Satan would be a coordinate power; but it is a love which embraces hatred, as an imperfect stage of it, an Anteros—yea, even needs hatred and hatefulness as its object. For self-love is no love; so if God's self is love, that which he loves must be defect of love; just as the luminary can light up only that which otherwise would be dark. Henry James, the Swedenborgian, says: "It is no doubt very tolerable finite or creaturely love to love one's own in another, to love another for his conformity to oneself: but nothing can be in more flagrant contrast with the creative Love, all whose tenderness *ex vi termini* must be reserved only for what intrinsically is most bitterly hostile and negative itself." This is from *Substance and Shadow: an Essay on the Physics of Creation.* (...)[101]

Referring to the *Secret of Swedenborg*, *Substance and Shadow*, and *Spiritual Creation*, Peirce said in 1911 that from their study he has "profited concerning morality otherwise (...) the fact that I have been unable to agree with much, not to say most, of the author's opinion, while not confident of my own, has, no doubt increased their utility to me. Much that they contain enlightened me greatly" (*MS* 675). With these last

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[101] C. S. PEIRCE, *CP* 6.287. Italics his. See also *CP* 6.507, 8.263.

words it might be justifiable to say that Peirce's theories owed something to Henry James, Sr.[102]

Michael Raposa concurred with Murray Murphey in pointing out that Peirce adopted his solution to the problem of evil from Henry James, Sr.[103] In three occasions in the *Collected Papers*, Peirce referred to Henry James Sr.'s *Substance and Shadow* as having provided him a satisfactory solution to the problem of evil.

The problem of evil as a particular topic was not dealt by Peirce extensively in his writings. In the "Neglected Argument," Peirce made this remark about evil: "Evil, i.e., what it is man's duty to fight, being one of the major perfections of the Universe" (*CP* 6.479). In a 1893 book review he also wrote: "Every religion worthy the name, represents a struggle between the good and some dark baleful resistance." Peirce defined evil as "that which man in general ought to resist."[104] Furthermore, he commented that "the well-being of mankind demands that there should be pain and

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[102] Walter Krolikowski also said that the word "vir" was used by Peirce in a Jamesian-Swedenborgian context (Cf. W. KROLIKOWSKI, "The Peircean Vir," *Studies in the Philosophy of Charles Sanders Peirce*, Second Series, Moore, E.-Robin, R. (eds.), University of Massachusetts Press, Cambridge 1964, pp. 257-270.)

[103] Cfs. M. RAPOSA, *PPR*, p. 87 and M. MURPHEY, *DPP*, p. 350.

[104] C. S. PEIRCE, "Review of G. M. Gould's *The Meaning and the Method of Life: A Search for Religion in Biology*," *N* 1. 175-178.

evil; he ought to thank God for permitting them to exist. For so man is permitted to have a part in the creation."[105] Man fights evil by controlling it, eliminating it, understanding it, foreseeing and directing it in such a way that it loses its "evil" character. To Peirce, evil has a cosmological character which refers to that element in the universe which has not yet been brought under the domain of reason. In the first of the Lowell Lectures of 1903 Peirce made an allusion that man plays his part in creation by doing what little bit is given to him to do (put evil under the domain of reason) rendering the world more reasonable. Taking Peirce's abhorrence to Infallibilism, evil then is an inevitable aspect of creation, just like errors or mistakes, in order that a sublime good can be realized --that to make the world more reasonable.[106]

Peirce's 1893 *Monist* essay, "Evolutionary Love" (*CP* 6. 287-317), so with his 1906 paper, "Answers to Questions Concerning My Belief in God" (*CP* 6. 494-521), both exhibit the influence of Henry James, Sr.[107]

> "Do you believe this Supreme Being to have been the Creator of the Universe?" (...) I think that, vain as it is to attempt to bring to light any definite meaning from the idea, it is nevertheless true that all reality is due to the creative power of God. I am inclined to

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[105] C. S. PEIRCE, *MS* 1177, undated.

[106] Cf. C. S. PEIRCE, *CP* 1.615.

[107] Cf. M. RAPOSA, *PPR*, pp. 9, 77.

> think (...) that the process of creation has been going on for an infinite time in the past, and further, during all past time (...). I think we must regard Creative Activity as an inseparable attribute of God.
>
> "What do you imagine the present functions of this Supreme Being toward the Universe to be?" Creation, as just said; and much may also be learned from the book *Substance and Shadow* (1863) by Henry James, the father.[108]

These passages, together with those of "Evolutionary Love," are clear expressions of God as Creator and of Peirce's adherence to the conception "God is Love." Love is creative in at least two senses for Peirce, causing things both *to be* and *to be in relation*. Peirce's evolutionary cosmology supposes that the entire universe has evolved from an initial state of chaotic "nothingness" in which there is no law of regularity. Out of this initial chaos, regularity has gradually evolved. Ideas spring up spontaneously, spread, become affected by one another, and form general ideas. This is the law of mind, also the law of love. Peirce sustains love as constituting not only the creative origin of such ideas but also the gentle force that joins them into harmony. This form of evolution is governed by a creative God whose «agape» plays an important role in the evolution by creative love.[109] Twenty

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[108] C. S. PEIRCE, *CP* 6.505-507, C. 1906.

[109] Cf. D. ANDERSON, *Creativity and the Philosophy of Charles S. Peirce*, Martinus Nijhoff Publishers, Dordrecht 1987, pp. 85-121.

years before his 1870 review of Henry James, Sr.'s book, Peirce already emphasized this concept of God as creative love in His own fashion:

> An appearance is only in consciousness. To create therefore, or cause an appearance, is to awaken a consciousness, to vivify. To give being is to give life, or being is life. (...) Now, to have one's life in others is to love. So the essence of God is love. The creations's being also lies in another, namely, in God; and, therefore, his life too is love; only as he does not confer this life upon the other, but receives it from Him, it is receptive or selfish love, while the Creator's is perfect and unselfish love. Since, therefore, the Creator is perfect love, the creation is to be explained on the principle of love.[110]

3.3. Peirce's idea of community and church

"Community" and "Church" are two concepts with relevant notions to Peirce. The former is usually referred to the development of his scientific arguments and the latter to his religious arguments. But since in Peirce, science and religion go hand in hand, both merit some discussion here.

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[110] C. S. PEIRCE, *W* 2.434. Peirce employs here the term "being" as used by Henry James, Sr. in his book to connote "permanence" in any real object as explained by Peirce himself at the beginning of the article.

3.3.1. The relevance of community in Peirce

The concept of community is a key notion to Peirce. This notion is closely related to his idea of the continuity of mind, a continuity which extends not just from the mind of one person to that of another, but also from reason in man to reason in nature. Peirce asserted that community is a necessary condition for a valid inquiry. In his first European sojourn in 1871 during which he compared his earlier findings of the solar eclipse he observed in American territory with that seen in Europe the same year, he was able to prove the importance of the community of inquirers in reevaluating and validating hypotheses.

Murphey wrote that Peirce's reason for assuming the existence of community is that if there is to be an infinite process of inquiry there must be an infinite inquirer, and this cannot be a single man. Accordingly, the agreement of observers may be regarded as another aspect of agreement of different observations, whether made by the same man or not, and so of a coherence theory which holds the real to be that which the thought in the opinion which reduces our experience to coherence.[111] Substantiating Murphey's analysis, John E. Smith added, that it is important to notice that the community principle in Peirce means both a community of inquirers or knowers and a community or

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[111] Cf. M. MURPHEY, *DPP*, p. 302.

system of ideas.[112] With regards to the former, Smith commented further that Peirce's concept of community as "community of investigators purporting to be scientific," can be defined as "the willingness of each individual member to sacrifice what is personal and private to him alone in order to follow the dictates of an interpersonal method that involves free exchange views and results."[113] Vincent Potter wrote, "when Peirce thought of the community of inquirers, he had in mind primarily an ideal group of dedicated men pursuing a correct method of research."[114]

In other words, community for Peirce is a group of persons dedicated to scientific pursuits. Joseph De Marco argued that this concept of community in Peirce is not true throughout his life of philosophizing. De Marco contended that the community in Peirce's earlier system is not the same with the community Peirce was referring to in his later system. De Marco opined that in the earlier system, Peirce generally places community in the context of universally agreed-upon information, and thus, cognitive, since it has nothing essential to do with physical location, occupation or practical concerns. A community functions as an epistemological ideal; the community of agreement defines truth and reality as the

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[112] Cf. J. SMITH, "Community and Reality," *Perspectives on Peirce*, R. Bernstein, (ed.), Yale University Press, New Haven 1965, p.109.

[113]. J. SMITH, "Community and Reality," p. 110.

[114] V. POTTER, *CSPNI*, p.185.

culmination of the thought process that occur in the minds of men. Peirce defines man, De Marco proceeded, to be both essentially communal and negatively individual. Men derive their communal nature when they are in agreement through the necessary operation of thought. And in participating in the unified information, men find their positive nature, as participants in the community. On the other hand, Peirce's community in the later system, De Marco continued, is marked with normative and religious perspective. De Marco's second concept of Peircean community is no longer solely an epistemological and metaphysical doctrine, it involves instead the normative sciences of esthetics and ethics. God and religion maintain a prominent role in the community. Community in the later concept is the religion of the scientifically educated, participating in and contributing to God's activity. As De Marco saw it, Peirce's later concept of community is the personal unification of scientists discovering and participating in the evolving universe. The scientific community is the means through which man can reach what should be his highest goal, —the *summum bonum*— verified by Peirce through the normative science of esthetics.[115]

Mary Mahowald disagreed with De Marco's analysis. She defended the position of most Peirce scholars concerning Peirce's notion of community: group of persons dedicated to scientific pursuits. She said that this definition most Peirce

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[115] Cf. J. DE MARCO, "Peirce's Concept of Community: Its Development and Change," *TCSPS*, 7 (1971): 24-36.

scholars held is broad enough to allow various interpretations. She ventured further to say that maybe De Marco's objection is due to the generality of the definition most scholars gave, guided by the practicality of generality which Peirce himself stressed. To Mahowald, generality facilitates a reading of consistency between the earlier and later notions of Peircean community that De Marco raised. Community in Peirce, according to her, is essentially the same throughout, giving as an example to prove her claim an analysis of means and end involving Peirce's evolutionary idealism.[116] In his writings, Peirce saw existent community as constituting whatever partial truth or belief had thus far been achieved (*CP* 5.375, 5.416, 5.565). Such community is evolving, different minds may set out with antagonistic views, but the progress of investigation carries them by a force outside themselves to one end and the same conclusions (*CP* 5.407). Thus, community is the means to the perfect unity which is also the community of ideas and inquirers, it is the means through which the ideal community is realized. In the two concepts of Peircean community De Marco presented, the means and ends are not distinct from each other.

Peirce claimed in his theory of reality that "the conception of reality (...) essentially involves the notion of a COMMUNITY" (*CP* 5.311, capitals his). For him, we have no way of understanding reality except through our

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[116] Cf. M. MAHOWALD, "Peirce Concept of Community: Another Interpretation," *TCSPS*, 9 (1973): 175-186.

representations: we have no access to what a real thing is other than our experience and conceptual representations of its sensible effects. Reality in itself, or its uninterpreted nakedness, is a pragmatically meaningless notion, for it is a notion of the unknowable, the incognizable or unconceived.[117] Hence, "reality consists in the agreement that the whole community would eventually come to" (*CP* 5.331). This does not mean that reality is a matter of arbitrary decisions on the part of the scientific community; nor what the real is established by sheer convention. But what is conceived to be real does establish itself as the unanimous and "irresistible effect of inquiry" (*CP* 5.494), that is, in the conformed beliefs of the scientific community. This confirmed beliefs tend to approximate the truth, the opinion ultimately agreed upon by all who investigate. To recapitulate, what we suppose or assert to be real is the result of a socially shared, interpretative interactions with the world. What is thought to be real and the character of real things is determined by inquiry. It is the community, the community of scientific inquirers that fixes that conception of the real: it consists in the agreement that the whole community would eventually come into.

Community to Peirce is the place for the settlement of opinion which is the sole end of inquiry. Community also is

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[117] C. S. PEIRCE, *CP* 5.310, 1868: "The meaning of a word is the conception it conveys, the absolutely incognizable has no meaning because no conception attaches to it. It is therefore a meaningless word (...)."

necessary to Peirce for the fixation of belief, establish habits of conduct and validate belief systems. Community is the forum for the process of inquiry. The validity of inquiry depends upon its being indefinitely extended, so that sooner or later any degree of error will be detected and corrected. Man must be concerned with what happens in "the long run" and "on the whole," rather than about that which happens to him individually. This concern to Peirce involves the identification of one's concern with those of an indefinitely extended community:

> (...) That logicality inexorably requires that our interest shall not be limited. They must not stop at our own fate, but must embrace the whole community. this community again, must not be limited, but must extend to all races of beings of whom we can come into immediate or mediate intellectual relation. It must reach, however vaguely, beyond the geological epoch, beyond all bounds. He who would not sacrifice his own soul to save the whole world is, at it seems to me, illogical in all his inferences, collectively. Logic is rooted in the social principle (...).[118]

3.3.2. The Church in Peirce

In the *Collected Papers*, Peirce uses the term, "church" forty-two times and "churches" nine times. But then its meaning are not univocal in his usage. He recognized all the existing churches, the historical ones, which he said contain a

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[118] C. S. PEIRCE, *CP* 2.654, 1893; *CP* 5.354, 1893.

lot of superstitions, and the modern ones —the monotheistic as well as the Trinitarian. In Peirce's usage of the term one is left to wonder which particular church he is referring, whether the Unitarian church to which his father belonged and where he was raised, or to the Episcopalian church where he belonged the rest of his life after his conversion. In a letter to William James in 1902 he asked, "Why don't you join the Church? Surely you won't [sic] allow metaphysical formulae dead as the dust of the catacombs, to deprive of your RIGHT to the influences of the Church" (*CP* 8.276 capitals his). Which church he referred we can not be sure. At times, Peirce would put before it the term catholic, other times universal, but not to refer to the Roman Catholic Church. The Roman Catholic church to him is Christ's Church, the church of Rome, or the Romish church headed by the Pope, whose infallibility he questioned.

Peirce critical remarks was directed against religious institutions, not against the faith that sustains them but against the political concerns and tactics of theologians (*MS* 865; *CP* 6.3, 1898). To Peirce, it is inconceivable to have a church-less faith. He even exclaimed once:

> (...) When the thirty thousand young people of the society of Christian Endeavor[119] were in New York, there seemed to me some

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[119] The Society of Christian Endeavor is a young people's movement founded by Congregational minister Francis Edward Clark in Portland, Maine in 1881. It is a worldwide interdenominational organization whose objective is to promote Christian life and services.

> mysterious diffusion of sweetness and light. If such a fact is capable of being made anywhere, it should be in the church. The Christians have always been ready to risk their lives for the sake of having prayers in common, of getting together and praying simultaneously with great energy, and especially for their common body, for the "whole state of Christ's church militant here on earth," as one of the missals has it. This practice they have been keeping up everywhere, weekly, for many centuries. Surely a personality ought to have developed in that church, in that "bride of Christ," as they call it, or else there is a strange break in the action of mind, and I shall have to acknowledge my views are much mistaken (...).[120]

Although Peirce did not identify a historically specific or actual church, he was himself an Episcopalian with a rather loose affiliation with that community and he clearly perceived in the Christian faith the essential elements for the development of an ideal community. He advocated for a "Universal Church" where all the churches can have a place.

> Man's highest development are social; and religion, though it begins in a seminal, individual inspiration, only comes to full flower in a great church coextensive with civilization. This is true of every religion, but supereminently so of the religion of love. Its ideal is that the whole world shall be united in the bond of common love of God accomplished by each man's loving his neighbor.

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[120] C. S. PEIRCE, *CP* 6.271, 1891. As one could have noticed already, some information here are inaccurate with regards to this congregational organization. Peirce mentions more the characteristics of the first Christian communities, the ancient Catholic Church.

> Without a church, the religion of love can have but a rudimentary existence; and a narrow, little exclusive church is almost worse than none. A great catholic church is wanted"[121]

At this point, I suspect that Peirce religious ideal of a "great catholic church" was influenced by those of his experiences as a scientists that strengthened the necessity of cooperative effort in research and experiences that forged his understanding of the nature of truth. But Peirce did not expound explicitly on this ideal in his scattered religious writings. But applying his synechistic emphasis on the real connectedness of all things, Peirce could have adopted this sort of perspective.

But for now it is clear that Peirce's use of the term "church" had always to do with religion. Existing partial churches can unite into a single universal church if obstacles are removed. Among the obstacles he considered is the divisiveness of creeds, owing to the failure to distinguish religion from theology. With his knowledge of universal history, Peirce argues that in an early period of decline, Christianity to which civilization must recognize its debt, passed from religion based on love to a theology based on hate: «odium theologicum».[122] His aversion to the adherence to a particular creed was due to his belief that the gospel of love is not in any of it. Theologians, he says formulated it

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[121] C. S. PEIRCE, *CP* 6.443, 1893.

[122] Cf. C. S. PEIRCE-V. WELBY, *SS*, pp. 72, 76

"with a view of proclaiming damnation and procuring the persecution of some body of convinced Christians" (*CP* 6.450). In a letter, Peirce explained that "when he joined the Episcopal church he did so without believing anything but the general essence and spirit of it."[123] But in a letter to Lady Welby, he expressed some of what may be called "ecumenical overtures:"

> (...) I say the creed in the church with the rest. By doing so I only signify, as I presume the majority do —and hope they do— my willingness to put aside, most heartily, anything that separate me from my fellow Christians. For my very grounds of my criticism of creeds is that every one of them was originally designed to produce separation, contrary to the notions of Him who said "He that is not against me is for me."[124]

3.4. God and Religion in C. S. Peirce

Peirce said, "A Neglected Argument for the Reality of God" is a "sort of table of contents" delineating the central features of his religious perspective. He called it also as the "poor sketch" of his philosophy of religion. Peirce considered himself a "theist" because he was a pragmatist. In 1906 he

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[123] As quoted by M. MURPHEY, *DPP*, p. 15.

[124] C. S. PEIRCE-V. WELBY, *SS*, p. 78. Maybe Peirce wants to quote the Gospel passage "Anyone who is not against you is for you" (Lk 9:50), or "He who is not with me is against me. . ." (Lk 11 23; Mt 12:30). The criticisms he made about the creeds are found in *CP* 7.97 ff.

expressed his belief in the reality of God by plainly stating: "So, then, the question being whether I believe in the reality of God, I answer, Yes. I further opine that pretty nearly everybody more or less believes this including many of the scientific men of my generation" (*CP* 6.496).

3.4.1. The God that C. S. Peirce believed in

Peirce showed wariness in his attempt to describe God. He did not want to personalize God as it was like limiting him. For example, he argues, "since there is a strong reason to hold that what we call consciousness is either merely the general sensation of the brain or some part of it, or at all events some visceral or bodily sensation, God probably has no consciousness" (*CP* 6.489).

3.4.1.1. *God and Religion in the Youthful Peirce*

Not long after he began to study the scholastics, he delivered his "The Place of Our Age in the History of Civilization,"[125] lecture at the reunion of the Cambridge High School Association. He started the lecture imagining Dante watching the human mind do its creative and critical work in the past centuries. His conclusion: "he who viewed hell without dismay would fall to the earth quailing before the terrific might of intellect which God has scattered broadcast

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[125] Cf. C. S. PEIRCE, *W* 1.101-114, 1863. In *MS* 958, 1891 Peirce described this lecture as "Hegel-like paper."

over the whole age" (*W* 1.102). This God acts in such a way as to spread the intellect around, even intellect that criticizes religion. Then he went on to characterize their age from that of reformation, and gave a brief history of philosophy, accentuating its skeptical character. Peirce up to this date, was not satisfied with any of the solutions, including his own trials to Kant's "insoluble doubt." Neither the inclusion of God in the realm of the categories (realistic pantheism) nor the exclusion creating the two domains of faith and reason left him comfortable. He had not yet discovered to his own satisfaction, either the nature or the knowability of "Immortality, Freedom and God" (*W* 1.104).

Peirce's criticism was that the sense of mankind refuses to be elevated into identification with God. He was aware of himself as less than divine. He found out what he took to be Hegel's solution to Kant's problem was unsatisfying: God is somehow more than the "sense of mankind." So he pleaded in this passage for "methodological scepticism" [sic] (*W* 1.104) and proceeded to discuss the function of Christianity in the growth of civilization. According to Peirce, we Christians must believe that "Christ is now directing the course of history and presiding over the destinies of kings, and that there is no branch of the public weal which does not come to the bounds of his realms" (*W* 1.107f). Here, Peirce was manifesting his acceptance of the divinity of Jesus, a tenet rejected by Unitarianism where he grew up, and his adherence to the Trinitarian faith of the Episcopalians. He saw Jesus' divinity as consisting in the governance of the universe. Then he proceeded to describe the course by which the idea of God arises in human beings:

> Religion ought not to be regarded either as subjective or an objective phenomenon. That is to say, it is neither something within us nor yet altogether without us— but bears rather a third relation to us, namely, that of existing in our communion with *another being*. Nevertheless, religion may be revealed in either of the three ways— by an inward self-development, or by seeing it about us or by a personal communication from the *Most High*. An example of revealed religion in the first way is the natural religion. A man looks upon nature, sees its sublimity and beauty and his spirit gradually rises to the idea of God. He does not see the *Divinity*, nor does nature prove to him the existence of that *Being*, but it does excite his mind and his imagination until the idea becomes rooted in his heart. In the same way, the continual change and movement in nature suggest the idea of *omnipresence*. And finally, by the events of his own life, he becomes persuaded of the relation of that being with his own soul. Such a religion, where all is hinted at naught revealed, is natural religion.[126]

Here Peirce uses several names and descriptions for God: 1) *Another being*, —neither within nor without— which strengthens the impression that he was carefully trying to maintain an immanence-transcendence balance; 2) *Most High*, which seems to indicate the acceptance of a biblical God who acts through historical events but is not wholly identified with them; 3) *The Divinity*, which is rather a neutral term favored by the Unitarians, without particular religious or philosophical implications; 4) *Omnipresence*, which suggests immanence,

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[126] C. S. PEIRCE, *W* 1.109, 1896. Italics added.

but in the context leaves open the possibility that to be present is to be other than that in which or to which one is present; and 5) *Being*, related with one's own soul may be immanent, but must be other than that to which it is related.

Donna Orange holds that aside from the terminology's, two other points stand out. First, that in Peirce's conception of God, existence is not important. Peirce did not claim that nature proves the existence of God. What he put in question is the idea of a being, not its existence. Besides, the idea is suggested rather than strictly proven. Things exist, but Peirce was already inclined toward rejecting the notion of God as a thing among other things. Second, the capacity of God (mentioned in other names) for relatedness and for communion with human beings. Then this God that Peirce is conceiving must have something in common with the human person to serve as the basis of relationship. This God must be other than those beings to whom God is related, or with whom God is in communion.[127]

After analyzing materialism and idealism, Peirce concluded that they require each other (*W* 1.111), then seconded Bacon in the latter's statement that the end of science is the glory of God and the use of man (*W* 1.113). He ended his lecture expressing his optimism to a time when the attributes of the personal God, wisdom and mercy would be seen in the personality of all things, a time when there will be no more

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[127] Cf. D. ORANGE, *PCG*, p. 15.

poetry for that which was poetically divine science and religion will know (*W* 1.114).[128]

In the 1866 Lowell Lectures, Peirce dedicated the third lecture discussing the probabilities, Boolean algebra, the justification of induction and the common characters of inference in general (*W* 1.303-407, 1866). Then near the end of the lecture, while presenting and criticizing the usual answers given by mathematicians and theologians to these questions, Peirce formulates his argument for theism— God is the hypothesis in an abductive argument:

> Every argument by which we get to any new truth is also of such a kind as this [inductive inference]. The faculty for this sort of reasoning makes up shrewdness, and is the essence of a genius. The alliance of man with the divinity is more plainly seen here than anywhere. He observes the regularities of the animal kingdom now, and he knows from that how it was in some geological era —a million ages ago. (...) he observes the finite and he seems to know the possible of the infinite.
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> How is it possible that this should be; how can we comprehend such proceeding? We call such inference, resting upon observation; but when we have drawn seven balls from this bag, we have not observed a single one of the remainder which we infer to are all red. So astounding does such a faculty seem; that some logicians have said —it is inspiration and nothing less. (...) but by pious and

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[128] In another place he mentioned that he accept the doctrine of a personal God (*CP* 6.162, 1891).

> spiritual minds who can see that even Shrewdness is essentially inspiration. For my part, I could not imagine a more sublime manifestation of the Deity, that that which appears in the nature of inference itself. Nor can I conceive of a function so appropriate to Infinite Power as that of regulating not the universe merely but the very consistencies upon which the possibility of a universe depends. And it seems to me that the power of judging the unseen by the seen, —even if it be applied to the most sordid weak objects— affiliates man to the Creator of things.[129]

For the reality of the Creator, the best evidence known to Peirce is the human capacity to conceive plausible hypothesis. Besides, the nature of the Creator can be inferred from reflection on the nature of this most amazing human capacities. If inference is the most sublime manifestation of the Deity, this deity must be something like an immense mind, or like the reasonable non-arbitrary, character of things which make such inference possible, or both. Peirce would often maintain later that regularity, or the law-like character in the universe is not self-contradictory, but is above all that aspect of nature which requires explanation[130] as I will explain with detail later on in the chapter.

I cited before that Peirce closed this lecture series with the presentation of his developing semiotic upon his conception of God. Peirce sees God as the symbol of all, of everything there

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[129] C. S. PEIRCE, *W* 1.405, 1866.

[130] Cfs. C. S. PEIRCE, *CP* 6.12, 1891; *CP* 6.464-465, 1908.

is. A symbol of everything that is not empty whose comprehension is null, whose character has no practical consequences but rather God is a symbol rich for interpretation. It "signifies every fact of everything" and signifies necessarily. This is the Creator of the World since all is necessarily conformed thereto." The signifying of this infinite symbol of the All is thus identified with God's creativity. Furthermore, Peirce also found a close analogy to the traditional Trinitarian doctrines in his conception of God as a symbol. Both include in their beings the functions of object, interpretant, and ground. Each aspect is fully constitutive of the divine symbol, and all are essential to it. Although it still seems to be abstract and empty, Peirce considers God to be at least as real as any other symbol, and surely as real as any other person just as any other symbol is personal. From what Peirce holds, a symbol is personal, and every person is a symbol, so God is personal. In fact, God is the infinite source of all personality, of all the finite symbols. God is subject to the ordinary conditions of being a sign, and like every sign transcends those object-signs. Yet one must not forget that the symbol is fully comprehended in its object— the All, every fact about everything.[131]

In "Critique of Positivism" (*W* 2.122-130, 1868), Peirce declares himself to be a theist after showing that Comtean positivism is self-contradictory. He insists that a scientist can

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[131] This was pointed out to me by Prof. Guy Debrock during a recent discussion.

be a theist and need not be a positivist. Theist are men who clench to a certain theoretical outlook of the world; who are convinced "that they are immortal beings under the government of a loving God" (*W* 2.123). This view is justified not merely because it is pleasant to hold, but because of the unhappy consequences for the one who holds the opposite belief, like the pessimist for whom life is a exhaustful and purposeless journey. This not only a rejection of pantheism where there is no clear separation between God and nature. Pantheism to Peirce is "essentially unchristian," and as implying a "denial of God's personality."[132] It is also an affirmation of the Roman Catholic doctrine of Divine Providence that the world is protected and governed by a loving God.[133] Then he provides a definition of theism:

> Let us now turn to theism. The capital principle of this, is that nature is absolutely conformed to an end; or in other words, that there is reason in the nature of things. Now from what has been said before it follows that so far as we attain true culture so far will the sum of all our impulses come to the love of reason as it is necessarily is, and therefore so far as we are as we ought to be so far as we perfectly gratified by what according to the nature of things, takes place; which is another way of saying that whatever is best. Now this is not only a consolation. That happens which so far

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[132] Quoted from D. ORANGE, *PCG*, p. 38

[133] Cf. *Catechism of the Catholic Church*, 302-314.

> as our own nature is developed, so far as we truly know our own mind, is what delights us most.[134]

Theism in Peirce implies a teleological view of nature and of our own lives. Life is full of purpose and the recognition of the development leads to theism. The theist's view of the world is that there is reason in the nature of things. Peirce would hold on to this hypothesis from then on and his cosmological rumination was an attempt on how this reason in the nature of things works.

Peirce then presents an outline of the theory-practice relation with regards to belief in God where he detected in metaphysics no hindrance to theism. "We awake to reflection and find ourselves theists." (*W* 2. 127f). Peirce found no reason to suspend theistic belief while working on metaphysics. Orange says that it has a remarkable resemblance to the 1898 Cambridge lectures, in which Peirce held reasoning to be out of place on vitally important topics. It is the commencement of a process which would end in late view that instinct is involved in all reasoning, and that reason is a kind of a refined instinct.[135]

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[134] C. S. PEIRCE, *W* 2. 126, 1868.

[135] Cf. D. ORANGE, *PCG*, p. 19.

3.4.1.2. *God in the mature Peirce*

In his advanced years, Peirce started to conceive God in some sense personal yet was not humanly embodied or limited. In Peirce personhood was not primarily an individual matter, particular facts are seconds and person is a symbol, a Third (*CP* 6.270, 1893). To view God as personal is to understand God as some general character of the universe — its evolving reasonableness— and not some individual item or collection of items either inside or outside nature. "The word, 'God,' so 'capitalized' (as we Americans say) is *the* definable proper name, signifying *Ens necessarium*; in my belief really the Creator of all three Universes of Experience." (*CP* 6.452, 1908). According to Donna Orange this is the only place that Peirce explicitly used this attribute of God and qualified it immediately in terms of creator. She also opines the Peirce use the term *Ens necessarium* to gain a connection with both St. Anselm's ontological argument and St. Thomas Aquinas' argument from the being of contingent beings to that of necessary ones (the third way).[136] Potter for his part suspects that Peirce had in mind Royce's Absolute, which he conceded might be an appropriate abstract characterization of God but which is empty since it has no implications of human conduct. Deuser on the other hand, points that Peirce version of Anselm's ontological argument is experientially driven; that is to say, God's reality is pragmatically indubitable, not a

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[136] Cf. D. ORANGE, *PCG*, p. 78f.

deductive conclusion from an assumed premise.[137] If the Absolute as *Ens necessarium* is given the pragmatic interpretation of super-order, of which order and uniformity of the created universes are but particular varieties, then Peirce thought he could argue from the predictability that general laws governing matters of fact bring to the need of super-order.[138] To the question, "Do you believe in the existence of a Supreme Being?" Peirce deviates for a while the question and make some clarification. He explains that he prefers the term "God" because it "is a vernacular word and, and like all such word, but more than almost any, is *vague*" (*CP* 6.494). According to Vincent Potter, since Peirce is a pragmatist, sound theism to him must be vague.[139] Vagueness is a form of indeterminateness. Generality is another. A subject is said to be determinate with respect to a character when that character is predicated of it universally and

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[137] Cf. H. DEUSER, *Gott: Geist und Natur, Theologische Konsequenzen aus Charles S. Peirce' Religionsphilosophie*, Walter de Gruyter, Berlin 1993, pp. 20-26.

[138] Cf. V. POTTER, "A Response to Hartshorne," *Peirce and Contemporary Thought: Philosophical Inquiries*, K. Ketner (ed.), Fordham University Press, New York 1995, pp. 356-365.

[139] Cfs. V. POTTER, "Vaguely Like Man: The Theism of Charles S. Peirce," *God, Knowable and Unknowable*, R. Roth (ed.), Fordham University Press, New York 1972, pp. 264-277. and V. POTTER, "C. S. Peirce's Argument for God's Reality: A Pragmatist View," *Wisdom and Knowledge: The Papin Festschrift*, vol. II, J. Armenti.(ed.), The Villanova University Press, Villanova 1976, pp. 224-244.

affirmatively. In all other respects the subject is indeterminate. A sign is vague if it reserves for some other possible sign, and not for the interpreter, the function of completing the determination. Vagueness is removed only by rendering it general. Anything is vague in so far as the principle of contradiction does not apply to it.

In a letter to William James, Peirce reaffirms that he is a theist because he is a pragmatist.[140] To be a belief at all, belief in God must make a difference to human conduct. If belief in God is a true belief, God must be a reality that makes a difference to human conduct. Not only must belief or non-belief make a difference, but the reality or non-reality of God must make a difference. The way in which God is described, the attributes by which we characterize Him, must show him to be intimately involved in human life. But the characterization must be such that it does not make God any less God. The traditional predicates of natural theology fulfills these requirements. God may well be absolute, but if nothing more is said, God is left too abstract and formal to be an object of belief. Something must connect Him to human experience. Although Peirce gives the abstract predicate, he adds that God is One, personal, transcendent, Creator of the Universes of Experience, omniscient, omnipotent, infallible, not subject to time, not finite and provident.

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[140] C. S. PEIRCE, *L* 224, 1905.

Aside from being vague and pragmatic, sound theism must also be anthropomorphic. Anthropomorphism is but another term for pragmatism, considered as an analysis of scientific method (*CP*, 8.262). Human reasoning, as development of instinct, depends upon conceptions; scientific hypotheses included, are anthropomorphic. God must be known in and through experience (therefore God must be immanent), and yet God must be known as other than any object of experience (therefore, God must be transcendent). To say that man cannot go beyond the limits of possible experience does not need to prevent him from trying to conceive of a supreme and indeed transcendent cause or agency of the entire universe. When all is said and done, Peirce opines, man will find no more adequate way of conceiving this supreme agency than as vaguely like man (*CP* 5.536).

This anthropomorphic character of God sounds like the "dipolar" God of contemporary process theology. This "panentheistic" tendencies of Peirce were detected by Charles Hartshorne and labeled Peirce as a "process theist." Hartshorne praised Peirce for anticipating twentieth century process theology but blamed him, on the other hand, for not embracing fully the process perspective.[141]

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[141] Cf. C. HARTSHORNE, "A Critique of Peirce's Idea of God," *Philosophical Review* 50 (1941): 516-23. See also C. HARTSHORNE-W. REESE, *Philosophers Speak of God*, Chicago University Press, Chicago 1953, pp. 268-269.

What is panentheism?[142] It is a doctrine that views all things as being in God without exhausting the infinity of the divine nature. It utilizes a real distinction between the essence of God and His existence, or consider God as having accidents really distinct from his nature. Panentheism stands as a kind of surrelativism holding for real convertible relation of dependence between God and the world —not only is world dependent upon God, but God is dependent upon the world. It regards the world as an actual fulfillment of God's creative possibility. Panentheism is rooted in a conviction that the world as possible in the mind of God becomes actualized and thereby adds to God's actuality. It opposes the Thomistic view that God is a Pure Act. Panentheists give special importance to what they call, "logic of polarity" as the only means of escaping problems arising from the use of categories. Today it describes the views of those who introduce a polarity in the notion of God as both eternal and temporal and as including yet trascending the world, developed extensively by Alfred North Whitehead and Charles Hartshorne.

Whitehead offers a dipolar God by distinguishing between the so-called primordial and consequent aspects of the divine nature: the primordial aspect is considered as the first cause of all things; the consequent aspect is God as the end of all things. Arguing from the relativity of all things, he holds for a

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[142] I express my gratitude to Prof. Dr. José Alviar who gave me the first orientations about this matter.

reaction of the world upon God to the extent that the whole of the created order stands as a fulfillment of God's concrete being, though not of his conceptual nature.[143] From this vantage point, Hartshorne has done most to give panentheism formal expression as a view of God. His philosophical approach to the existence and nature of God involves a notion of causality that includes a convertible relation of dependence between cause and effect, so that a cause depends upon its effects and effects upon their cause. For him, God is the supreme stream of causation rather than the first cause, and He has yet to be fully realized.[144]

What tempted Hartshorne to interpret Peirce as a process theist was his view of God's creative activity as a continuous and evolving process. Traces of panentheism can also be found in Peirce's scholastic author Scotus. Although he insisted on freedom in the act of creation, Scotus' view of God as being necessitated to will the ideas of things, his doctrine of the univocity of being, his ideas of infinity and his insistence upon the limitations of metaphysics imply polarity. Peirce could also have encountered this doctrine when he was writings the definitions for the *Century Dictionary*, a task which forced him to read a great deal in the history of philosophy and clarified many of his ideas. He could have

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[143] Cf. A. N. WHITEHEAD, *Process and Reality: An essay in Cosmology*, Harper and Row, New York 1929, pp. 519-533.

[144] Cf. C. HARTSHORNE, *Man's Vision of God and the Logic of Theism*, Archon Books, Hamden 1964, pp. 1-56, 347f.

encountered Schelling's Absolute described as the identity of all differences. For Schelling, God will "be" only when the absolute has fully revealed itself; his God is in process in somewhat the same manner as Whitehead's consequent God. Peirce wrote that philosophies of the absolute "are certain systems of metaphysics founded on Kant's *Critique of Reason* —most prominently those of Fichte, Schelling, and Hegel— which, departing from the principles of Kant, maintain that the absolute is cognizable" (*MS* 958). Hegel considers nature as an externalization of the absolute, and portrays the absolute itself as a never-ending process that implies eternity and temporality. The traces of panentheism among these authors and others might have surfaced in Peirce.

But contrary to Hartshorne, John E. Smith, Vincent Potter, and Michael Raposa are of the opinion that Peirce was a theist of more traditional sort.[145] Potter, in assessing Peirce's religious ideas, said that Peirce might be characterized as "between two worlds, [as suggested by Hartshorne]— the world of classical theism, (from which he moved away) and

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[145] Cfs. J. SMITH, "Religion and Theology in Peirce," *Studies in the Philosophy of Charles S. Peirce*, P. Wiener,-F. Young (eds.), Harvard University Press, Cambridge 1952, pp. 251-267; "Vaguely Like Man: The Theism of Charles S. Peirce," *God, Knowable and Unknowable*, Roth, R. (ed.), Fordham University Press, New York 1972, pp. 264-277; "C. S. Peirce's Argument for God's Reality: A Pragmatist View," *Wisdom and Knowledge: The Papin Festschrift*, vol. II, J. Armenti, (ed.), The Villanova University Press, Villanova 1976, pp. 224-244 and M. RAPOSA, *PPR*, pp. 63-92

the world of process theism, (at which he had not arrived). Peirce's philosophical theology is neither Aquinas nor Hartshorne's."[146] At this point there exists a tension in Peirce's religious thought. But Peirce hesitated to attribute growth to God: "a purpose essentially involves growth, and so cannot be attributed to God, still (...) it will be less false to speak so than to represent God as purposeless" (*CP* 6.466). God as the creator of the three universes is the first cause. The panentheists in applying the notion of polarity to causality, place a reciprocal relation of dependence between cause and effect. If such interdependence is granted, it would seem to do away with the meaning of causality as such. For while lower order of causes are more involved with their effects through the principle of reaction, such involvements exist by reason of the limits of these causes— causality as such does not demand such reciprocity. This is especially the case of God. Speaking of God, in Peirce, as the first cause of the three universes, does not limit him to a mode of action found in secondary causes; rather it affirms his transcendental perfection. Therefore, it may be ascertained that, although Hartshorne was able to identify traces of panentheism in Peirce, the god of Hartshorne, which has yet to be fully realized, like the finite god of James, does not fit with Peirce's conception of God.

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[146] V. POTTER, "A Response to Hartshorne," p. 356.

Peirce clearly rejected the idea of a finite God and even wrote William James in disgust and branded him a pagan for his notion of a finite God:

> My only comfort is in religion. I *am* a theist, —not a pagan like you. It is a religion, paganism, but to my mind little better than none. This finite god of yours must have rivals no doubt. Existence consist in reaction. It must be a whole genus. And they have, I suppose no religion at all. They are wretched atheist with no ideals. The true theist's God is a being whom we can only vaguely know; but his essence is reality. The Idea— He *Is*. When we attempt to think of what He is, we fall into contradictions because he is above all human comprehension. That is what we *all* love to adore, and this loving adoration is the best proof of his *Being*, which is not *existence* but creation. Your finite gods may be respectable but they are creatures to criticize. The true Ideal is the Living Power (...) To think of the true theist's God is balm to the Heart. It comforts one for one's own shortcomings (...)[147]

This letter contains many elements of Peirce's mature theism to which he would hold from then on. On the issue of God's infinity, he is against James because only a deity who is one could make the universe a coherent whole, and only an infinite God could be one. God, to Peirce, does not exist; to say so would be fetishism (*CP* 6.495), making God a mere

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[147] C. S. PEIRCE, *L* 224, 22-VII-1905. Italics and capitalization his. This letter is reproduced also in R. B. PERRY, *The Thought and Character of William James*, vol. 2, pp. 434f.

thing, another item in the universe reacting to a Second with all the other items. To say that God exists is to prefer James' finite gods, "one of the genus." "Existence is a reaction, and therefore no existent can be clear supreme (*CP* 8.262). Reality, on the contrary, has no such negative implications:

> "I define the *real* as that which holds its character on such a tenure that it makes not the slightest difference what any man or men may have *thought* them to be or ever will have *thought* them to be, here, using thought to include imagining, opining, and willing (as long as forcible *means* are not used); but the real thing's character will remain absolutely untouched.[148]

God's reality is both creation, more as a process than as a product, an esthetic ideal. Ideals are the most real of all realities (*SS*, 23). "The true ideal is the Living Power" (*CP* 6.495). The pragmatist sees this power interpreted in worship, human conduct, and in filiation of the human heart and mind to God. To suppose the ultimate ideal to be unreal would be to make nonsense of all inquiry. "His essence is reality" is a sort of Peirce's version of the ontological argument, a pragmatic sort of reality inclined within the ideal of the *summum bonum*. The *summum bonum* has become more than the ideal outcome of inquiry and evolution; it is the living power of beauty to attract us irresistibly. Without such reality, the ideal would be pragmatically empty.

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[148] C. S. PEIRCE, *CP* 6.495, c. 1906. Italics his.

Besides, the God that Peirce believed in is not subject to time: "A full exposition of the pragmaticistic definition of the *Ens Necessarium* would require many pages; but some hints towards it may be given: a disembodied spirit, or pure mind, has its being out of time" (*CP* 6.490). He writes further adapting the traditional attributes of theistic natural theology:

> "Do you believe Him to be omniscient?" Yes, in a vague sense. Of course God's knowledge is something so utterly unlike our own that it is more willing than knowing. I do not see why we may not assume that he refrains from knowing much. For this thought is creative. But perhaps the wisest way is to say that we do not know how God's thought is performed and that [it] is simply vain to attempt it. we cannot so much as frame any notion of what the phrase "the performance of God's mind *means*. Not the faintest! The question is gabble.
>
> "Do you believe Him to be Omnipotent?" Undoubtedly He is so, vaguely speaking; but there are many questions that might be put of no profit except to the student of logic. Some of the scholastic commentaries consider them. Leibniz[t] thought that this was the best of "all possible" worlds. That seems to imply some limitation upon Omnipotence. Unless the others were created too, it would seem that, all things considered, this universe was the only possible one. Perhaps others do exist. But we only widely gabble about such things.
>
> "Do you believe Him to be infallible?" If omniscient, how not? But perhaps this is a slip of the typewriter for *impeccable*. Theologians insist upon this sundry questions which are in the highest degree displeasing to me, not to say offensive. I do not presume to know anything about it, but it seems to me that the very

> meaning of the word "God" implies, not surely *morality*, for He seems to me to be above all self-restraint or law, but to imply aesthetic spiritual perfection.[149]

Peirce's conception of God as a reality is "prior to every first" (*CP* 6.217). While Potter affirms that the categories apply to God,[150] I am of the opinion that it would be a mistake on Peirce's account to apply his categorical scheme to an analysis of the idea of God, since God transcends these categories. God is preexistent, a pre-categorical "No Thing." Peirce holds the idea of God, as "the Absolute First [which] eludes every attempt to grasp it." When we attempt to think about God as something relative, a Third, that is something of the nature of sign, "for God, the Creator is the Absolute First, is the *terminus* of the Universe" (*CP* 1.362). This religious sentiment is the root of faith: a source of strength and assurance both in scientific and moral life. It is only the basis of such private and non-rational sentiment that one could utter of the natural laws like the universal law of gravitation in a particular occurrence.

This is the God that Peirce believed in. Peirce would try to demonstrate the reality (not the existence) of the God he believed in the essay "A Neglected Argument for the Reality of God" (*CP* 6.452-491).

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[149] C. S. PEIRCE, *CP* 6.508-510, 1906. Italics his.

[150] Cf. V. POTTER, "A Response to Hartshorne," p. 363.

3.4.2. The "Neglected Argument" examined

By 1908 Peirce published the article he was working way back in 1905 in the seventh volume of the *Hibbert Journal* entitled, "A Neglected Argument of The Reality of God."[151] Michael Raposa has written that this article is the maturest expression of Peirce's thought and one of the very few extended treatments of religious topic.[152] "Neglected Argument" was also Peirce's last expression of his religious ideas, which on close examination of all his writings shows that they are so firmly embedded in the foundations of his thoughts, contrary to some Peirce scholars who affirmed that his religious ideas were insubstantially connected with the rest of his philosophical system.[153] Religion to Peirce is a topic of vital importance and so is a matter more of the heart than of the head as I have written above. Peirce was also a theist. In a letter to William James in 1905 he affirmed that he is a theist because he is a pragmatist,

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[151] C. S. PEIRCE, *CP* 6.452-493. To abbreviate the long title I shall refer to it from then on simply as "Neglected Argument." A good Spanish translation and a sound study of this paper is S. F. BARRENA, *Charles S. Peirce: Un Argumento Olvidado en Favor de la Realidad de Dios*, Facultad de Filosofía y Letras, Universidad de Navarra, Pamplona 1996.

[152] M. RAPOSA, *PPR*, p. 3.

[153] The editors of the *Collected Papers Of Charles S. Peirce* are of this opinion as they assumed it in the editorial note of the volume 6 devoted to religion or "psychical metaphysics" that religious ideas have rather tenuous connections with the rest of his system...

> The God of my theism is not finite. That won't [sic] at all. For to begin with, existence is reaction, and therefore no existent can be *clear supreme* (...) In the next place, anthropomorphism for me implies above all the true Ideal is a living power, which is a variation of the ontological proof. (...) That is, the esthetic ideal, that which we *all* love and adore, the altogether admirable, has, *as ideal*, necessarily a mode of being to be called living. Because our ideas of the infinite are necessarily extremely vague and become contradictory the moment we attempt to make them precise. But still, they are not utterly unmeaning, though they can only be interpreted in our religious adoration and the consequent effects upon conduct.[154]

Peirce starts the essay with a glossary of terms which he thought necessary to understand his argument (*CP* 6.452-456). The first of which is «God», previously discussed, followed by «Real», «Experience», then, «The Universes of Experience», and finally, «Argument» differentiating it clearly from «Argumentation».

To be «Real» is to have properties sufficient to identify their subject whether or not anyone actually attributes them to it. Whatever is actual or existent is real, but not the other way around. What is actual or existent is found in space and in time. To talk then of an actual or existent God is to place Him in space and time as simply as one would to a spacio-temporal object. Peirce made this clear later when he proposed a

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[154] Cf. C. S. PEIRCE, *CP* 8.262. Italics his.

substitution of the term "reality" for "existence." God can properly only be real (*CP* .6.495).

«Experience», to Peirce, is a conscious effect produced upon a subject by brute interaction with the environment in a way that it contributes to the formation of a habit. It is self-controlled, yet so satisfying upon deliberation that it cannot be destroyed. Such habits are modified or broken only by further brute interactions. Somewhere, Peirce writes that all knowledge is based on direct experience, including the knowledge of God. Real and knowable are coextensive. If God is real, then God is knowable, whatever knowledge we can achieve comes from experience (*CP* 6.492-493).

The «Universes of Experience» are the elements of our experience. These are the possibility, actuality and mediation, each one being an application of his categories of Firstness, Secondness and Thirdness, respectively. The first universe — the universe of the possibility— comprises all mere Ideas those airy nothings, dear to poets and mathematicians whose reality consists in their capability of actually being thought and not in anybody's actually thinking them, save their reality. The second universe —the universe of the actuality— is that brute facts and other things whose reality consists in their reaction against brute force. The third universe —the universe of mediation— is made up of laws or necessitants or in other words "everything whose being consists in active power to establish connection between different objects, especially objects in different universes" (*CP* 6.455).

The last term that Peirce defines is «Argument», "that is any process of thought reasonably tending to produce a

definite belief, differentiated from «Argumentation» which is an argument proceeding from definitely formulated premises" (*CP* 6.456). Argument is a living process of thought, while argumentation is the representation of that process in non-vague terms. The first mistake of the theologians, according to Peirce, is the failure to distinguish arguments from argumentations:

> (...) Nevertheless, of all those theologians (within my little range of reading) who, with commendable assiduity, scrape together all the sound reasons they can find or concoct to prove the first proposition of theology, few mention this one, and they most briefly. They probably share those current notions of logic which recognize no other arguments than argumentations.[155]

Since the concept of God is invariably vague, the argument for such a being resists precise formulation. Besides, the evident is usually the most difficult thing to understand and when understood even more difficult to express. God in Peirce is self-evident.

> If God really be, and benign, then, in view of the generally conceded truth that religion, were it but proved, would be a good outweighing all others, we should naturally expect that there would be some Argument for His Reality that should be obvious to all

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[155] C. S. PEIRCE, *CP* 6.457. Vincent Potter points out that adherents to "those current logic" during those times assumed that vagueness had no place in logic and must be eliminated. Peirce made a detailed analysis of vagueness in *CP* 5.446 and 5.505-508.

> minds, high and low alike, that should earnestly strive to find the truth of the matter; and further, that this Argument should present its conclusion, not as a proposition of metaphysical theology, but in a form directly applicable to the conduct of life, and full of nutrition for man's highest growth.[156]

This natural hope is fulfilled by the Neglected Argument, the "Humble «Argument»." The humble argument is not intended to be an argumentation for it has no formulated premises. The process of thought results from an agreeable occupation of mind which reasonably tends to produce in the reality of God, is a spontaneous free meditation Peirce called «Musement». The formulation of hypothesis comes naturally and spontaneously in musement. Although musement is a highly contemplative activity, Peirce recommends that it requires disinterest and detachment. He describes it as a "Pure Play, (...) a lively exercise of one's powers which involve no purpose save that of casting all serious purpose (*CP* 6.458) save an earnest love of truth" (*CP* 6.457). It is an activity in which we may choose in a self-controlled fashion, to engage, but it leaves room for tychistic development for ideas to grow up spontaneously out of Pure play without any flaw of continuity. It is nothing but a pure play whose only rule is the law of liberty. Musement is different from a game, because games include rules. It is an exercise, which has no ulterior purpose but recreation, no preconceived notion as to its outcome, no prejudices of any kind. Musement is directed

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[156] C. S. PEIRCE, *CP* 6.457.

towards the three Universes he described before. So the Muser proceeds not with the goal of "becoming convinced of the truth of religion but simply to meditate some wonder in one of the Universes, or some connection between the two or three" (*CP* 6.458).

> One who sits down with the purpose of becoming convinced of the truth of religion is plainly not inquiring in the scientific singleness of heart, and must always suspect himself of reasoning unfairly. So he can never attain the entirety even of a physicist's belief in electrons although this is avowedly but provisional. But let the religious meditation be allowed to grow up spontaneously out of Pure Play without any breach of continuity, and the Muser will retain the perfect candour proper to Musement.[157]

Peirce wants to convey his deep sentiment as a man imbued with the spirit of scientific research always open to learn from the lessons of nature and his disagreement with theologians for their dogmatic stand. Likewise he recommends musement to his readers to avoid the false start. Then he gives some advises taken from personal experience which may be of help for the potential Muser:

> (...) The dawn and the gloaming most invite on to Musement; but I have found no watch of the nychthemeron that has not its own advantages for the pursuit. It begins passively enough with drinking in the impression of some nook in one of the three

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[157] C. S. PEIRCE, *CP* 6.458.

> universes. But impression soon passes into attentive observation, observation into musing, musing into a lively give and take of communion between self and self. If one's observations and reflections are allowed to specialize themselves too much, the Play will be converted into scientific study; and that cannot be pursued in odd half hours.[158]

What is important, he continues, whether these advises were helpful or not ,is to "adhere to the ordinance of Play, the law of liberty" (*CP* 6.460) giving the strong warning that the road to inquiry should not be blocked by prejudiced masked as axioms of wisdom. Then he proceeds that the course of musement cannot be prescribed beforehand, it is an open play with only the law of liberty to be carried in mind:

> There is no kind of reasoning that I wish to discourage in Musement; and I should lament to find anybody confining it to a method of such moderate fertility as logical analysis. Only, the player should bear in mind that the higher weapons in the arsenal of thought are not playthings but edge tools. (...) Enter your skiff of Musement, push off into the lake of thought, and leave the breath of heaven to swell your sail. With your eyes open, awake to what is about or within you, open conversation with yourself; for such is all meditation.[159]

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[158] C. S. PEIRCE, *CP* 6.459.

[159] C. S. PEIRCE, *CP* 6.461.

As the Muser, according to Peirce, begins to let his mind wander, certain considerations are likely to arise such as "psychological and semi-psychological questions" (*CP* 6.462) which will lead to metaphysical and logical ones (*CP* 6.463-464). Such meditations might lead the mind over "the breadth and depth, the unspeakable variety of each Universe" (*CP* 6.464), he might be impressed with the "nature of homogeneities of connectedness in each Universe" (*CP* 6.464) and eventually his mind will walk to the "consideration of homogeneities and connections between two different Universes, or all three" (*CP* 6.465).

A closer look on these threefold considerations is appropriate although Peirce devoted only two brief paragraphs for it.[160] Peirce maintains that variety, change and growth are the most instantaneous, most stunning, and the most ubiquitous characteristics of our experience. The world of our experience is in continuous change or movement. Such a situation in itself does not create any particular expectation concerning the course of phenomena are likely to follow or the order which is likely to appear. It can only give rise to the expectation of further, endless, variety. When there is no particular expectation concerning the order of events, there can be no surprises since in such a world anything would be as

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[160] Potter said that the briefness of Peirce's consideration is due to that each muser must make the meditation for himself in liberty in order to grasp the force of the argument and it can only be understood thoroughly under the consideration of Peirce's synechism and tychism.

likely as anything else. When there are no surprises, there are no questions and when there are no questions no explanations are required. What is surprising in our endlessly varied experience is the fact that there is some order and regularity. It is the law-like character of experience which needs explaining. It is not the law-like character of events which explains our experience, but rather it is just that regularity which must be explained.[161]

The second consideration Peirce makes is the "homogenities of connectedness within each universe" or the regularity in the Universes. In spite of the continuous change of experience there are uniformities, not absolute, not exact but regularities nevertheless. Obviously, Peirce is referring here to the innate laws in the world— the laws of nature. These laws of nature are not rigid; they themselves admit variations and so can themselves change and evolve. The regularity in experience is the one that makes them discernible. Peirce argues that the real is real, —since it cannot be absolutely indiscernible— and is due to regularity. Yet this sort of regularity which is less than absolute and exact is what constitute reality. It makes expectation concerning our future experience, leaving margins for surprises and therefore the source of questions.

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[161] Peirce developed this line of thought in his contention against mechanicistic determinism.

With regards to the homegenities and connections between two or more Universes, Peirce seems to refer to the existing regularities between the Universes. What the Muser encounters now in this particular consideration is growth in which all three Universes plot for a "universal feature of it:

> (...) Especially in them all we find one type of occurrence, that of growth, itself consisting in the homogeneities of small parts. This is evident in the growth of motion into displacement, and growth of force into motion. In growth, too, we find that the three Universes conspire; and a universal feature of it is provision for later stages in earlier ones.[162]

Peirce thinks that this process of reflection eventually leads to the Hypothesis of God as *Ens Necessarium*, a reality:

> (...) in the Pure Play of Musement the idea of God's reality will be sooner or later to be found an attractive fancy, which the Muser will develop in various ways. The more he ponders it, the more it will find response in every part of his mind, for its beauty, for its supplying an ideal of life, and for its thoroughly satisfactory explanation of his whole threefold environment.[163]

Up to this point, Peirce has demonstrated how the hypothesis of the Reality of God can be attained by Musement. This is the abductive phase of the process of

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[162] C. S. PEIRCE, *CP* 6.465.

[163] C. S. PEIRCE, *CP* 6.465.

inquiry. Yet there still remains the task to prove its consequences, validity and truth, just as Peirce puts it:

> At this point a trained mind will demand that an examination be made of the truth of the interpretation; and the first step in such an examination must be a logical analysis of the theory. But strict examination would be a task too little serious for the Musement of hour fractions, and if it is postponed there will be an ample renumeration even in the suggestions that there is no time to examine; especially since a few of them will appeal to reason as all but certain.[164]

Peirce recognizes that the "hypothesis of God is a peculiar one, because it infers an *infinitely incomprehensible* object, although every hypothesis, as such, supposes its object to be truly conceived in the hypothesis" (*CP* 6.466. Italics mine). For Peirce, the infinite incomprehensibility of God is attended by some knowledge of God. In Anderson's analysis, the incomprehensibility of God with which Peirce is concerned arises in connection with his evolutionary cosmology, since that which God's reality hypothetically explains is itself ever receding from the grasp of inquiry. Inasmuch as we reason retroductively from experience, our hypothesis must always be adapted to new developments in the history of thought.[165] In presenting an initiatory subliminal image at how he defines his "strictly hypothetical God," Peirce consummates both the

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[164] C. S. PEIRCE, *CP* 6.464.

[165] Cf. D. ANDERSON, *SSPCP*, p. 151.

faith dimension of the humble argument and begins the discussion of its scientific dimension. He also describes his own reconstruction of the nature of religious belief. It is also essentially vague. Due to this essential vagueness the idea of God generated by the humble argument —the hypothesis of God— does not lend to the kind of deductive elaboration necessary for the generation of predictive consequences relevant to verification or falsification. Given the indeterminate content of the idea of God, there seems to be no way to generate predictions in terms of which its veracity could be checked. There is no way to go on cognitively with the hypothesis beyond its initial plausibility.[166] Meanwhile, at this point Raposa adds that the Muser will recognize upon carefully considering the idea of God that represents the *summum bonum*, the three-fold esthetic, ethical, and logical ideal, that for Peirce, constituted the ultimate object of inquiry in the normative sciences.[167]

With respect to the "apparent attribution of growth to God," Peirce argues that if the hypothesis of God is subject to growth in that it tends to define itself without limit, it must represent God as subject to growth too. But the representation of God as "growing" is "contradicted in the hypothesis in the first phase" but since it is "ineradicable from

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[166] Cfs. V. POTTER, "C. S. Peirce Argument for God's Reality: A Pragmatist View," pp. 234-236 and C. DELANEY, "Peirce on the Hypothesis of God," *TCSPS*, 28 (1992): 725-739.

[167] Cf. M. RAPOSA, *PPR*, p. 125-126.

the hypothesis, [it] cannot, according to the hypothesis, be flatly false" (*CP* 6.466). Potter said, "something must be in God's reality like growth although we do not have the precise idea of what it is like for this follow from Peirce's understanding of Thirdness as the category of the real. And Thirdness involves meditation and continuity. The real and the intelligible are identical and both are thirds."[168] But Peirce could have noticed that it cannot be simply true to attribute growth to God since it will be render God finite, the type of God James conceived of, and which Peirce abhors. Growth can be attributed to creatures like the Universe of experience, which is in continual process of development. Peirce explicitly says that "(...) it is impossible to say that *any* human attribute is *literally* applicable" to God (*CP* 6.502. Italics his).

Peirce likewise affirms that it is "less false" to speak of God as having a purpose "than to represent God as purposeless" (*CP* 6.466). A foregoing section has pointed out that the God that Peirce believed in is a Creator. Someone who performs an activity has a purpose. God then has a purpose. But the question does not stop here. Is it essential to the notion of actively accomplishing something that the agent undergo change or is it only the patient that change? Shall an infinite agent suffer transformation? Applying the situation to our case, as we have a purpose we undergo change. We suffer a transformation. But this may be due to our finiteness, to our

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[168] V. POTTER, "C. S. Peirce Argument for God's Reality: A Pragmatist View," p. 236.

deficiency of infinite power. God cannot be said to have a purpose in the same way that we do, but yes, He has something akin to a purpose in that what He intends in His creative act is accomplished in his creatures, they come to be and develop according to His Divine will. In Peirce's words, "the hypothesis of God (...) supposes an infinitely incomprehensible object" (*CP* 6.466). A detailed positive predication about His reality cannot but be empty. After all, a strand of cognitive content can be grasped because despite of the implications we are tempted to draw, which we must abjure, there is in some point to holding them to "be less false than their denial would be" (*CP* 6.466).

Notwithstanding its vagueness, and because of its plausibility, the hypothesis of God has pervasive pragmatic consequences in as much as it has the tendency to inform the active life of its adherents to a far greater degree than other kinds of hypotheses. Although cognitively less determinate, it is pragmatically more meaningful to attract the Muser:

> (...) any normal man who considers the three Universes in the light of the hypothesis of God's Reality, and pursues that line of direction in scientific singleness of heart, will come to be stirred to the depths of his nature by the beauty of its idea and by its august practicality, even to the point of earnestly loving and adoring his strictly hypothetical God, and to that of desiring above all things to

> shape the whole conduct of life and all the springs of action into conformity with the hypothesis.[169]

Musement concludes with a belief in a strictly "hypothetical God" that has such "august practicality" that the muser desires "above all things to shape the whole conduct of life and all the springs of action into conformity with the hypothesis." The instinctiveness of the humble argument leads to a fully practical belief, however, being hypothetical, its conclusion retains a dimension of scientific provisionality. Peirce maintains that "our instinctive beliefs are far more trustworthy than the best established results by science, if this be precisely understood" (*MS* 845). Instinct provides a foundation for a full practical belief.

Peirce then examines the logical justification of the Hypothesis of God examining the elements of the complete inquiry, and testing the logical validity of the elements and indicating the place of the Neglected Argument in a complete inquiry into the Reality of God (*CP* 6.469). The hypothesis of God does not lend to the kind of deductive elaboration necessary for the generation of predictive consequences relevant to verification or falsification due to its vagueness, so Peirce just summarizes and returns to the "first stage of inquiry" which involves the finding or creating of a hypothesis that can explain the living doubt (wonder). He calls this stage

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[169] C. S. PEIRCE, *CP* 6.467.

"Retroduction" (in other texts he called it Abduction),[170] a "reasoning from consequent to antecedent." Retroduction involves ideas emerging "sometimes without our cognizance," and it sometimes require dark labouring" (*CP* 6.469). Although retroduction is self-controlled, this first moment of critical reasoning is not fully controlled, there is a spontaneous dimension; the muser controls to the point of permitting the play of ideas but then must respond to retroductive suggestions as they present themselves.[171] Every genuine progress in knowledge comes through retroduction. Deduction barely draws out explicitly what the hypothesis contains. Induction seeks to evaluate its truth in the premises of experience. It is retroduction which provides the major premise for the deduction and tells the inquirer what to look for applying inductive techniques (*CP* 6.469-474). Peirce identifies retroduction as reasoning from consequent to antecedent. Then he considers deduction and induction, two stages he suggests for undertaking scientific inquiry, although "they have nothing to do with the Neglected Argument" itself. "They add no jot nor tittle to the truth which is invariably brought just as the Neglected Argument brings it," he says (*CP* 6.468). Peirce seems to emphasize his belief that only retroduction is truly creative of new beliefs; induction and deduction deals with the hypothesis that retroduction give

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[170] Cf. C. S. PEIRCE, *CP* 5.180-206, 2.708 and 2.755

[171] Cf. D. ANDERSON, *Creativity and the Philosophy of Charles S. Peirce*, p. 43f.

them. In another essay he argued that "abduction is originary in respect to being the only kind of argument which starts a new idea" (*CP* 2.96). "Neither deduction nor induction contributes the smallest positive item to the final conclusion of the inquiry. Deduction explicates, Induction evaluates" (*CP* 6.475). Peirce sees in Retroduction the light of intelligence that attests to the affinity of mind and nature. Retroduction performs the most necessary, although not necessarily the most difficult, work of inquiry. It produces new ideas and hypotheses, the planks of the "cantilever bridge of induction" (*CP* 6.475) that the history of human science builds. It is also the foundation of instinctive reason. Peirce equates retroduction with the "spontaneous conjectures of instinctive reason." The spontaneous and overpowering impulse to form hypotheses is a "symptom of its being instinctive" (*CP* 6.476). Instinct, it seems is understood here by Peirce as the instincts of animals, which are fallible. This is what distinguishes his method from the *a priori* method he resisted in "Fixation of Belief."

Peirce asks himself whether man in fact has this ability to discern continues:

> (...) But it is in fact that man possesses this magical faculty? Not, I reply, to the extent of guessing right the first time, nor perhaps the second; but that the well-prepared mind has wonderfully soon guessed each secret of nature is historical truth. (...) There is reason, an interpretation, a logic, in the course of

> scientific advance, and this indisputably proves to him who has perceptions of rational or significant relations, that man's mind must have been attuned to the truth of things in order to discover what he discovered. It is the very bedrock of logical truth.[172]

Then Peirce cites Galileo, who called this "bedrock of logical truth" as *il lume naturale*.

> Modern science has been builded [sic] after the model of Galileo, who founded it, on *il lume naturale*. (...) It was not until long experience forced me to realize that subsequent discoveries were every time showing I had been wrong, while those who understood the maxim of Galileo had done, early unlocked the secret that the scales fell from my eyes and my mind awoke to the broad and flaming daylight that it is the simpler Hypothesis in the sense more facile and natural, the one that instinct suggests, that must be preferred; for the reason that, unless man has natural bent in accordance with nature's, he has no chance of understanding nature at all. (...) I do not mean that logical simplicity is a consideration of no value at all, but only that its value is badly secondary to that of simplicity in the other sense.[173]

What Peirce is implying here is that the instinctive nature of hypothesis has to be put to test and controlled by the techniques of scientific method. Hence, in using these principles he started to evaluate the Neglected Argument

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[172] C. S. PEIRCE, *CP* 6.476.

[173] C. S. PEIRCE, *CP* 6.477.

imagining three types of men and their reactions to the argument:

> (...) the first of small instruction with corresponding natural breadth, intimately acquainted with the N. A.., but to whom logic is all Greek; the second, inflated with current notions of logic, but prodigiously informed about N. A.; the third, a trained man of science who, in the modern spirit, has added to his specialty an exact theoretical and practical study of reasoning of elements of thought, so that psychologists account him a sort of psychologist, and mathematicians a sort of mathematician.[174]

Peirce furthers in his analysis showing that the first man is naturally well disposed to understand the argument and to accept it; since he follows his instinct[175] in the matter without complications as suggested by critical reflections. Peirce believes that this man needs some avenue to God's reality to be open. This man "would have learned that nothing has any kind of value in itself —whether aesthetic, moral, moral or scientific— but only in its place in the whole production to which it appertains" (*CP* 6.479). This man has the disposition to think of God as having a purpose. Peirce recalls also the solution to the problem of evil which he adapted from the senior James. Henry James, Sr.'s conception of evil is a

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[174] C. S. PEIRCE, *CP* 6.478.

[175] See the importance of instinct in Peirce in R. TRAMMEL, "Religion, Instinct and Reason in the Thought of Charles S. Peirce," *TCSPS* 8 (1972): 3-25.

perfection of the universe for the reason that struggle is the condition of life. Evil to the first man is leading ultimately to good and that the fight against it required the cosmic law of growth:

> (...) he may hope that it be best *for them*, and tell himself that in any case the secret design of God will be perfect through their agony;[176] and even while still hot from the battle, will submit with adoration to his Holy Will. He will not worry because the Universes were not constructed to suit the scheme of some silly scold.[177]

Peirce does not stop at explaining what will be the reaction of the second man. The way he describes it, this man is "inflated with current notions of logic" (*CP* 6.478) that are full of errors that time. This is how Peirce conceives of the late nineteenth-century theologians who were by experience acquainted with the Neglected Argument but whose thinking was influenced by the nominalistic logic of the time. This man is the person to whom the Neglected Argument is addressed. It is the second group of person who neglected the humble argument, making it what Peirce denominates the Neglected Argument. This man working with a nominalistic or positivistic conception of inquiry will interpret reality to mean existence. Peirce mentions this type of man in his lecture on

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[176] This notion of physical and moral suffering in Peirce is of the Catholic doctrine. The participation of one's suffering in the salvific task of Jesus who offered his sufferings on the Cross.

[177] C. S. PEIRCE, *CP* 6.479.

pragmatism: "we find men who maintain that no hypothesis ought to be admitted, even as a hypothesis, any further than truth or its falsity is *capable* of being directly perceived" (*CP* 5.198).

The third man, the scientific man, is well-disposed to entertain the hypothesis due to its plausibility, which is a very attractive character, and for his training, puts the hypothesis to test:

> (...) the third man, considering the complex process of self-control will see that the hypothesis, irresistible though it be in the first intention, yet needs Probation; and that though an infinite being is not tied down to any consistency, yet man, like any other animal, is gifted with the power of understanding sufficient for the conduct of life. This brings him, for the testing of hypothesis, to taking his stand upon Pragmaticism, which implies faith in common sense and in instinct, though only as they issue from the cupel-furnace of measured criticism.[178]

The third man then discovers that the first and basic principle of common sense and instinct is the same as the scientific procedure. This is what Peirce calls Pragmaticism. What a pragmaticist will do with the Hypothesis of God is explore its implications with the human conduct. He will test its ability to render practical and operative details that make a difference to human conduct.

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[178] C. S. PEIRCE, *CP* 6.478

Therefore, to take the hypothesis of God, if it springs spontaneously from Musement as highly convincing, if it unifies other fragmentary experiences and if its consequences for human conduct drive men to conform their lives to the ideals it offers, then reason requires that the hypothesis be accepted not only theoretically but also practically. The desire to conform action to belief and to control belief through critical reflection is the drive of intelligence itself. This is Peirce's pragmatic drive for a reasonable belief.

In 1910, Peirce put an addendum (*CP* 6.486-491) to the original article where he described the three separate but related arguments he pursued. The first argument:

> (...) the entirely honest and sincere and unaffected, become unprepense, meditation upon the idea of God into which the Play of Musement will inevitably sooner or later lead, and which by developing a deep sense of adorability of that idea, will a truly religious Belief in His Reality and His nearness (...) This is that 'humble argument,' open to every honest man, which I surmise to have made more worshippers of God than any other (...)[179]

The 'humble argument' does not involve testing the hypothesis of God. Rather it is simply the process of letting one's instinctive faith in God assert itself. This argument is more than adequate for daily living where one must act in one way or the other in regard to God's reality.

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[179] C. S. PEIRCE, *CP* 6.486.

The second argument, «neglected argument», properly so called by Peirce, consists in presenting the humble argument as a natural product of free meditation (*CP* 6.487). This to Peirce is a sign of truth, but only a sign and not the final theoretical test. The third argument is the further development of the neglected argument for a man trained in science and familiar with logic (*CP* 6.488-490).[180] It "consists in a study of logical methodeutic, illuminated by the light of the first-hand acquaintance with genuine scientific thought (...)" (*CP* 6.488). This argument shows that the same course of meditation, which for practical purposes produces a living belief in God, from another point of view is the first stage of theoretical inquiry.

> (...) The student, applying to his own trained habits of research the art of logical analysis— an art as elaborate and methodical as that of the chemical analyst, compares the process of thought of the Muser upon the three Universes with certain parts of the works of scientific discovery, and finds that the 'Humble Argument' is nothing but an instance of the first stage of all such work, the stage of observing the facts, or variously rearranging them, and of pondering them until, by their reactions with the result of previous scientific experience, there is 'evolved' (as the chemists word it) an explanatory hypothesis (...) The plausibility of this hypothesis

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[180] Cf. V. POTTER, "C. S. Peirce's Argument for God's Reality: A Pragmatist View," *The Papin Festschrift: Wisdom and Knowledge. Essays in Honor of Joseph Papin*, vol. 2, J. Armenti (ed.), Villanova University Press, Villanova 1976, pp. 224-244.

> reaches an almost unparalleled height among deliberately formed hypotheses. So hard it is to doubt God's Reality when the idea has sprung form Musement, that there is a danger that the investigation will stop at the first stage owing to the indifference of the Muser to any further proof of it.[181]

Peirce explains three ways in which the Hypothesis of God is different from other scientific hypotheses. It seems to be far more natural or instinctive than ordinary hypotheses and as a result, it is granted with a high degree of plausibility. Peirce finds this heightened plausibility exceptional because it embarrasses rather than inspires critical inquiry. He explains this in relation to the second difference he noted. Due to the essential vagueness of the idea of God generated by the humble argument, the hypothesis does not lend itself to the kind of deductive elaboration necessary for the predictive consequences relevant to its validity or falsity. Since we cannot submit this idea of God to time and space it remains indeterminate. There is no way to generate predictions in terms of which its veracity could be checked. Thus, the Muser gets locked up and cannot go on cognitively beyond its initial plausibility. Thirdly, Peirce points out "its commanding influence over the whole conduct of life of its believers" (*CP* 6.490). The hypothesis of God is cognitively less determinate, but it is pragmatically more meaningful.

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[181] C. S. PEIRCE, *CP* 6.488.

For Peirce, scientific, logical and mathematical considerations play an essential role in shaping his views on God, creation, miracles, immortality, freedom, prayer, and community. In all his years of philosophizing, he never set aside his religious beliefs and leanings. That is why it is not surprising to find religiously significant notions and arguments in his logical and mathematical essays.

3.4.3. Peirce Greater Religious Faith

"Neglected Argument" had also been the issue of a very interesting exchange of ideas between Peirce and Lady Welby.[182] Among the inquiries Lady Welby made was when Peirce said "religion, were it but proved, would be a good outweighing all others. (...) Does he mean that religion must be thoroughly *tested*, and as it were the chemical result perfectly isolated and thus 'pure'; or does he mean *logically proved*?"(*SS*, 63f). To this Peirce answered:

> "(...) the question of the truth of religion [is] a question of what *is* true, and not of what *would be* true under arbitrary hypothesis, such as those of pure mathematics, the only logical proof possible is the testing. (...) since mathematical reasoning is well understood to be a necessary ingredient of all testing.[183]

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[182] Cf. C. S. PEIRCE.-V. WELBY, *SS*, p. 63-94. The letters are from Dec. 4, 1908 to Jan. 21, 1909.

[183] C. S. PEIRCE.-V. WELBY, *SS*, p. 68. (Italics his.)

Peirce objects strongly, however, to making mathematical demonstration the 'sole logical proof.' On the contrary, he maintains that 'testing' is the sole logical proof of any question concerning real objects." Another inquiry that Lady Welby made was, the use of the phrase 'belief in God.' She suspected that it betrayed an unconscious lack of *faith*, for which belief is indeed a poor substitute. She continued further: "For 'belief' may be mistaken, may both begin and end in error and in waste. But faith in the Perfection of all planed of which 'God' is our present symbol, is our central need. When indeed we realize the many despicable associations of the term 'God' (our god may be Self or our stomach!) we long for a purer symbol for the Better than the Best we know (*SS*, 64). To this Peirce answered:

> "By *belief*, I mean merely holding for true, —real, genuine, practical holding for true,— whether that which is believed to be the atomic theory, or the fact that this is Monday, (...) You well say that Belief may be mistaken. (...) Yet it is easy to show that this belief may be mistaken. For the judgment can never relate to the appearance at the instant of the judgment, because the subject of any judgment must have been known by *collateral* acquaintance. There can be no judgment of the very judgment itself (...). Belief that could not be false would be infallible belief and Infallibility is an Attribute of Godhead. The fruit of the tree of knowledge which Satan told Adam and Eve was to make them equal with God was precisely the doctrine that there is some kind of Infallible belief. This must be so, for after this was rendered still more blasphemous by asserting that the kind of belief that was to be Infallible was belief about God, the most utterly inscrutable of any subject, it

became the means of corrupting Christianity until religion of Love was confounded with the *odium theologicum*."[184]

This conception of belief is very similar to the conception of faith in his younger years presented earlier in this chapter although with a more explicit religious connotation. Then in a separate letter dated December 23, 1908, Peirce explains to Lady Welby, what is faith for him:

> You say there is a certain "Faith" the object of which is absolutely "certain." Will you have the goodness to tell me what you mean by "certain"? Does it mean anything more than that you personally are obstinately resolved upon sticking to the proposition *ruat caelum*? (...) Now I will tell you the meaning that *I* would, in my return attach to the word faith. The New Testament word is pistij, which means, in its more proper sense, *trust*; i.e. belief in something as having any knowledge or approach to knowledge about the matter of belief, but "implicit belief," as the Catholics say, i.e. belief in it derived from one's belief that a witness who testifies to it would not so testify if it were not so. (...) A person who says "Oh, I could not believe that this life is our only life; for if I did I should be miserable that I should suicide forthwith," I say that he has a *Faith* that things are not intolerably bad for any individual or at any rate are not so for him. Every true man of science, every man belonging to a social group all the member of which will sacrifice all the ordinary motives of life to their desire to make their beliefs concerning one subject conform to verified

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[184] C. S. PEIRCE.-V. WELBY, *SS*, p. 72. (Italics his.)

> judgments of perception together with sound reasoning and who therefore really believes the universe to be governed by reason, or in other words by God, —but who does not explicitly recognize that he believes in God,—has faith in God, according to my use of the term Faith. For example, I know a scientific man who devoted his last years reading theology in hopes of coming to a belief in God, but who never could in the least degree come to a consciousness of having the least belief of the sort, yet passionately pursued that very mistaken means of attaining his heart's supreme desire. He according to me, was a shining example of Faith in God. For to believe in reasoning about phenomena is to believe that they are governed by reason, that is by God.[185]

Peirce wants to explain that his theism involved a God who is not simply identifiable with phenomena although active and discoverable with them. God is the element of reason in nature, but always beyond it, the way ideals transcend what already exists. These ideals to Peirce are much more real than mere facts; they have pragmatic meanings: to believe in reasoning about phenomena makes the practical activities of science reasonable and is equivalent to an implicit belief in God.

> One is often in a situation in which one is obliged to assume, i.e. to go upon, a proposition which one ought to recognize as extremely doubtful. But in order to conduct oneself with vigorous consistency one must dismiss doubts on the matter from

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[185] C. S. PEIRCE.-V. WELBY, *SS*, p. 75. (Italics his.)

> consideration. There is a vast difference between *that* and any holding of the proposition to be certain. To hold a proposition to be certain is to puff oneself up with the vanity of perfect knowledge. It leaves no room for faith. It is not absolutely certain that twice two is four. It is humanly certain that no conception of God can be free from all error.[186]

Peirce put into manifest here his fallibilistic spirit even in religious matters, bearing in mind the limitations of our capacities. In another paper he stated: "To adhere to a proposition in an absolutely definitive manner, in matters of right and wrong, we sometimes cannot and ought not to avoid" (*MS* 442, 1898). Yet when Peirce turns to specific religious subjects, he withdrew his feeling of certainty. God may never be captured within our explanations, yet it does not belong to some domain of "incognizable" noumena. Peirce observes that an accurate human representation of God is not to be found, we cannot assume that human reason is infallible he explains. Faith is what make us hold on to some beliefs in spite of some uncertainties. Then he explains that the God of his theism: "strictly hypothetical God" (*CP* 6.467), does not lead to any theology but only to purely religious faith, since theology arises from discontent with religious faith. Furthermore, he makes an affirmation that the principle of

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[186] C. S. PEIRCE.-V. WELBY, *SS*, p. 76. (Italics his.)

love is the leading element of Christian faith which is in accordance with the "spirit of the Son of Mary" (*SS* 76).[187]

[187] Another mention of the Blessed Virgin Mary is found in *CP* 2.453, 1893: "(...) But when I say, I could find you a rule true of all sinners that does not hold good of all women (not, for instance, of the Blessed Virgin) (...)."

4. THE MERGING OF SCIENCE AND RELIGION IN C. S. PEIRCE

Distinct from many positivists of his time, Peirce's scientific orientation did not make him agnostic[1] or indifferent to religion. For all the scientific and mathematical thinking that he had, he never endorsed the antireligious enthusiasms of materialistic or deterministic promoters of science. He energetically scorned the "palpable falsity of that mechanical philosophy of the universe which dominate the modern world.[2] Yet in his enthusiasm for science, Peirce could have sympathized with the intellectual critics of religion, who

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[1] Charles Nicholls who was a student of Peirce in Johns Hopkins University wrote in his notebook that Peirce was agnostic, as quoted by Houser. See N. HOUSER, "Introductions," *W* 4.lxiv.

[2] C. S. PEIRCE, *CP* 6. 553, 1887.

ranged in his days from his Metaphysical Club mentor, the moderate and moralistic agnostic Chauncey Wright to the fiercely anticlerical positivist Auguste Comte. Peirce himself regarded science as a challenge to religion, but not in all its forms. James Hoopes argued that the Peircean mingling of materialist and mentalist views of nature constituted a middle way in the contest between religious and secular visions of the world.[3]

4. 1. A Certain Incident in the 1890's

When Peirce was publishing his five *Monist* articles from the 1891-1893, a certain incident happened. In a draft letter to the *Nation* in response to a column of July 9, 1891, Peirce stated his anemic status towards religion:

> I personally am a layman who have [sic] severed my visible connection with the Church, and so put my soul in jeopardy, because I cannot believe a certain article of faith in the sense in which it is commonly understood (...)[4]

Since he moved to Milford in 1887, Peirce used to stay in New York for varying periods of time in the 1890s. In one of these stays he drafted this letter:

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[3] Cf. J. HOOPES, *Consciousness in New England: From Puritanism and Ideas to Psychoanalysis and Semiotic*, Johns Hopkins University Press, Baltimore 1989, pp. 226f.

[4] C. S. PEIRCE, *L* 159, 1891.

Dear Reverend Sir:

I took the Holy Communion at St. Thomas's this morning, —in fact, just now,— under peculiar circumstances, which it seems proper to report.

For many years I have not taken the Communion and have seldom entered a church, although I have always had a passionate love for the church and a complete faith that the essence of Christianity, whatever that might be, was Divine; but still I could not reconcile my notions of common sense and of evidence with the propositions of the creed, and I found going to church made me sophistical and gave me an impulse to play fast and loose with maters with intellectual integrity. Therefore, I gave it up; though it has been the cause of many a bitter reflection. Many times I tried to cipher out some justification for my return to the communion of the church; but I could not. Especially, the last two nights I have lain awake thinking of the matter.

This morning after breakfast I felt I must go to church anyway. I wandered about, not knowing where, to find a regular Episcopal church, in which I was confirmed; but I finally came to St. Thomas. I have several times been in it on week days to look at the chancel. I therefore saw nothing new to me. But this time, —I was not thinking of St. Thomas and his doubts, either, —no sooner had I got into the church that I seemed to receive the direct permission of the Master to come. Still, I said to myself, I must not go to communion without further reflection. I must go home and duly prepare myself before I venture. But when the instant came, I found myself carried up to the altar rail, almost without my own volition. I am perfectly sure that it was right. Anyway, I could not help it.

I may mention as a reason why I do not offer to put my gratitude for the bounty granted me in some form of church work, that that which seemed to call me today seemed to promise me that I should bear a cross like death for the Master's sake, and he would give me strength to bear it. I am sure that will happen. My part is to wait.

I have never before been mystical; but now I am. After giving myself time to reflect upon the situation, I will call to see you. Yours very truly,

C. S. Peirce

It does not seem to me that it would be wise to make circumstances known; but I conceive it my duty to report them to you. I am a man of 52 and married.[5]

This letter was probably meant for Rev. John Brown, the pastor of the St. Thomas Episcopal Church on Fifth Avenue in New York. This letter probably was not sent since in the archives of St. Thomas, there is no trace whatsoever of any correspondence between Peirce and Rev. Brown. Just like the draft letter to the *Nation*, Peirce did not state which specific article of the creed he cannot believe in. With the help of the present pastor of St. Thomas Episcopal Church, Rev. John Andrew[6], I was able to take hold of a *Book of Prayer* of the

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[5] C. S. PEIRCE, *L* 483, 1892.

[6] I express my gratitude not only Rev. John Andrew, but also to Rev. Richard Alton, the associate pastor and to Mr. Morgan Holman, the

Protestant Episcopal Church in the US used in Peirce's times and examined the creeds it contain. Unlike the *Book of Prayer* of the Anglican Church in England that allow the recitation of the Apostle's, The Nicene and the Athanasian creeds, the Episcopal church allow only the first two. The articles of faith of the Episcopal church states that The Nicene Creed and the Apostle's Creed ought thoroughly to be received and believed for they may be proved by most certain warrants of holy Scripture. With regards to its content, it has the additional feature for Christ —begotten of his Father "before all worlds." It also omits the term "holy" as an attribute to the Church.

Scholars agree that after this incident, Peirce turned to be a regular communicant in his church from then on, notwithstanding some disagreements he had in the creed. Since Peirce believed that there can be no church-less faith, he adopted an ecumenical stand: "I say the creed in the church with the rest. By doing so I only signify, as I presume the majority do, —I hope they do;— my willingness to put aside, most heartily, anything that tends to separate me from my fellow Christians" (*SS* 78). Based on some criticisms Peirce made with the Roman Catholic Church and with the articles of faith of the Episcopal church on hand, he seems to had been a good Episcopalian. Understandably, like any other Episcopalian, Peirce rejected the Papal authority. The Pope

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Verger/Archivist of the St. Thomas Episcopal Church of New York for allowing me to look into the files of Rev. John Brown in their archives.

cannot be infallible since he is a mere person elected among equals. The "Romish" church is itself fallible, says the 19th article, for just as the church of Jerusalem, Alexandria, and Antioch have erred, so also did the Church of Rome. In letter draft on 1895 to George Searle,[7] a former Harvard and US Coast Survey colleague who converted to Catholicism and now a priest, commenting on a book Searle wrote, he said "I would join the ancient church of Rome if I could" (*L* 397). Peirce pointed out that no conceivable argument could support metaphysical infallibility,

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[7] George Searle (1839-1916), was a mathematician, astronomer and Paulist superior-general. He was raised as a Unitarian in Brookline, Massachusetts, and educated in Harvard were he received his B.A. and M.A. degrees. He worked for the US Nautical Almanac. Under the guidance of astronomer Benjamin Gould, he discovered the asteroid Pandora on Sept. 11, 1858, then worked at the US Coast Survey, where most probably he coincided with Peirce. He became an Episcopalian in 1858 then a Catholic in 1862 while teaching mathematics at the US Naval Academy (then at Newport , R. I.). He joined the Missionary Priests of St. Paul the Apostle in 1868, and was ordained priest in 1871. He was a lecturer of Mathematics and Astronomy at the Catholic University America, and became the fourth superior-general of his congregation from 1904 to 1909. Among the books he wrote intended for non-Catholics was *Plain Facts for Fair Minds* (1895), which I think was the book being referred to by Peirce in the draft letter. I suspect that Peirce knew him because in the letter quoted below Peirce say that he remember him affectionately and consider him as belonging to the union of searchers for truth. See P. FLYNN, "George Mary Searle," *The New Catholic Encyclopedia*, vol. 13, McGraw-Hill, New York 1967, pp. 14f.

> (...) For it is a long journey but to a certain end that of metaphysics, -namely, it is bound to search a conception different of that assumed at the outset. (...) Were your church only to reflect that it could gain power over the human heart equal, say to the horror against *incest*, it would have power enough, and that nobody ever has *proved* or is likely within, say a century to prove that incest is contrary to rational principles of conduct, but that we all fully accept the judgment of common sense against it, without in the least pretending that common sense is infallible in any metaphysical sense, but simply that *practically* the dicta of the heart ought to be accepted *practically* as infallible, then i.e. if Rome were content with as much authority as *that*, and it is mighty, there might be a strong probability of her uniting the entire *Christendom*. In short, the great foe to Rome is metaphysics. It is her malady.[8]

Yet in a manuscript probably of 1897, Peirce talked about an anticipated awakening of religious life, with greater simplicity of belief and greater spiritualization of the creeds. Furthermore, he stated that the Church's claim to infallibility is sound enough if by infallibility it meant practical infallibility.[9] When it comes to the doctrine of Transubstantiation which Peirce criticized in 1878[10], the Episcopalians believe that there is no real presence of Body

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[8] C. S. PEIRCE, *L* 397, 1895. Italics his.

[9] Cf. C. S. PEIRCE, *MS* 865, c. 1897.

[10] Cf. C. S. PEIRCE, *CP* 5.401, 1878.

and Blood, of Soul and Divinity of Christ in the consecrated bread and wine because it cannot be proven by the Holy Writ. Episcopalians hold that the Lord's Supper had spiritual effects, that it is really the body and blood of Christ by faith. But Peirce in 1902 made a rectification:

> The Roman church requires the faithful to believe that the elements of the Eucharist are really transformed into flesh and blood, although all their "sensible accidents," that is, all that could be expected from physical experience, remain those of bread and wine. The Protestant Episcopal church requires its ministers to teach that the elements remain really bread and wine, although they have miraculous spiritual effects different from those of ordinary bread and wine. "No indeed," say the Romanists, "they not only have those spiritual effects but they really are transmuted." But the layman declares that he cannot understand the difference. "That is not necessary," says the priest, "you can believe it implicitly." What does that mean? It means that the layman is to trust that if he could understand the matter and know the truth, he would find that the priest was right. But trust —and the word belief means trust primarily— essentially refers to the future, or to a contingent future. The implication is that the layman may sometime know, presumably will, in another world; and that he may expect that if he ever does come to know, he will find the priest to be right. Thus, analysis shows that even in regard to so excessively metaphysical a matter, the belief, if there can be any belief, has to involve expectation as its very essence.[11]

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[11] C. S. PEIRCE, *CP* 5.541, 1902.

This Peircean affirmation may still be very far from the Roman Catholic doctrine of Transubstantiation, but definitely, it is much different from his previous conception in 1878. Besides, it looks as though Peirce is making an effort to adhere to it and much later understand it. One must take into account that although his comprehension for the doctrine left much to be desired, he was receiving the sacrament of communion in his church as frequent as possible after the St. Thomas church incident ten years before he wrote the text cited above.[12]

4.2. Evolutionary Cosmology

Charles Darwin's theory of evolution, which shook the scientific world and anticipated a severe religious crisis, had a sequel in Peirce. In "Guess to the Riddle" (*CP* 1.354-368), Peirce, in the course of his experiment at applying his triadic conceptions to various branches of science, started to develop an evolutionary view and began to identify the metaphysical Absolute with the God who is the object of religious experience. God the Absolute is the Absolute beginning and the Absolute end of everything:

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[12] In St. Thomas Episcopal Church efforts where exerted to reconcile this doctrine as it was originally understood. When I showed this text to Rev. Andrew, the Pastor of St. Thomas Church, he turned emotional and brought me to the church to show me where the consecrated species are reserved (they even reserve the consecrated wine). He told me that the congregation —the Church council and its faithful, believes in the real presence of Christ in the Eucharist.

> The starting point of the universe, God the creator is the Absolute First; the terminus of the universe, God completely revealed is the Absolute Second; every state of the universe at a measurable point of time is third (...) if your creed is that the whole universe is approaching in the infinitely distant future a state of having a general character different from that toward which we look back in the infinitely distant past, you make the absolute to consist to consist in two distinct real points and are evolutionist.[13]

God then is not merely the mathematical, not even the metaphysical, since the absolute as used by Peirce, in my understanding, is the infinite which makes sense in the finite. God is the cosmological beginning, the creative spontaneity in the original chaos of feeling, and will be the ideal outcome of the evolutionary process.

In the last article of the *Monist* series that appeared in January 1893, "Evolutionary Love" (*CP* 6. 287-317), Peirce tried to present his evolutionary cosmology, at the same time provided for this account a meticulous religious interpretation. He criticized Darwin's theory of evolution rejecting the natural selection as the primary law of evolutionary development with religious consideration. Elsewhere he labeled existing theories of evolution as "degenerate," for it only reveals partial truths. It is also evident that in this essay Peirce wanted to express his belief in a creative God who governs the evolving universe. Commenting on St. John's

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[13] C. S. PEIRCE, *CP* 1.362, C. 1890

writings, he discussed God' s love as a factor in the universe. He begins the essay:

> Philosophy, when just escaping from its golden pupa-skin, mythology, proclaimed the great evolutionary agency of the universe to be Love.(...) nevertheless, the ontological gospeller, in whose days those views were familiar topics, made the One Supreme Being, by whom all things have been made out of nothing, to be cherishing-love. (...) [St. John's] statement that God is love seems aimed at that saying of the Ecclesiastes that we cannot tell whether God bears us love or hatred [Ecl 9,1]. "Nay," says John, "we can tell, and very simply! We know and have trusted the love which God hath in us. God is love" [1Io 4,16]. There is no logic in this, unless it means that God loves all men. In the preceding paragraph, he had said, "God is light and in him is no darkness at all" [1Io 1,5]. We are to understand, then, that as darkness is merely the defect of light, so hatred and evil are mere imperfect stages of ¦g§ph and ¦gaqÕn, love and loveliness. This concords with that utterance reported in John's Gospel: "God sent not the Son into the world to judge the world; but that the world should through him be saved. He that believeth on him is not judged: he that believeth not hath been judged already. . . . And this is the judgment, that the light is come into the world, and that men love darkness rather than the light" [Io 3, 17-19]. That is to say, God visits no punishment on them; they punished themselves, by their natural affinity for the defective. Thus, love that God is, is

> not love of which hatred is the contrary; (...) but it is love which embraces hatred as an imperfect stage of it, (...)[14]

Here, Peirce conceives divine love as a power that harmonizes discordant elements. Love is creative in two senses, causing things to be and to be-in-relation: "The movement of love is circular, at one and the same impulse projecting creations into independency and drawing them into harmony. This seems complicated when stated so; but it is fully summed up in the simple formula we call the Golden Rule" (*CP* 6. 288). Peirce contends that the law of mind — ideas spring up spontaneously, spread, become affected by one another, and form general ideas— is also the law of love. Love constitutes not only the creative origin of such ideas but also the gentle force that welds them into harmony. These divine activities are exercised in this circular movement of love, since it only through an act of will that anything can be made to exist. Yet the tendency towards generalization is itself a manifestation of law, of reasonableness. Thus, this love that is the source of all new ideas also establishes those relations that connect them to one another, projecting them as individual creations, even while drawing them into sympathetic communion.

> Love is not directed to abstractions but to persons; not to persons we do not know, nor to numbers of people, but to our own dear ones, our family and neighbors. "Our neighbor," we

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[14] C. S. PEIRCE, *CP* 6.287, 1893. The square brackets are mine.

remember, is one whom we live near, not locally perhaps but in life and feeling.[15]

This principle, Peirce suggests, achieved its most articulate expression in the Gospel of John. Here is the foundation for a truly evolutionary philosophy: the double conviction that God is love and that "growth," according to Peirce, comes only from love,"

> Everybody can see that the statement of St. John is the formula of an evolutionary philosophy, which teaches that growth comes only from love, from I will not say self-sacrifice, but from the ardent impulse to fulfill another's highest impulse. Suppose, for example, that I have an idea that interests me. It is my creation. It is my creature; for as shown in last July's *Monist*,[16] it is a little person. I love it; and I will sink myself in perfecting it. It is not by dealing out cold justice to the circle of my ideas that I can make them grow, but by cherishing and tending them as I would the flowers in my garden. The philosophy we draw from John's gospel is that this is the way mind develops; and as for the cosmos, only so far as it yet is mind, and so has life, is it capable of further evolution. Love, recognizing germs of loveliness in the hateful, gradually warms into life, and makes it lovely.[17]

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[15] C. S. PEIRCE, *CP* 6.288, 1893.

[16] Peirce is referring here to his "Man's Glassy Essence" (*CP* 6.238-271).

[17] C. S. PEIRCE, *CP* 6. 289, 1893.

Just as tending and cherishing are necessary to life and growth of living things, the universe as a whole grows by being loved —being projected forth from God and drawn back into harmony. God's creative love is to be identified neither with the randomness of pure chance nor the rigidity of mechanical law. It is a love that is spontaneous and free, the ever vital source of new ideas. In like manner, it is an ordering love, seeking no simple uniformity or regularity but a general harmony, the continuity of all things. This is how Peirce formulates his hypothesis about evolution: drawn from biblical resources and founded in its teaching of love. This is his theory of agapism or evolutionary love.

Then Peirce proceeds to examine the social conditions of the nineteenth century (*CP* 6.290-292) praising it for its economic prowess but at the same time lamenting for its use of intelligence in service of greed. Greed was "the great agent in the elevation of the human race and in the evolution of the universe" (*CP* 6.290). He traces this to Darwin's *Origin of Species* translated into economic-political views. To him the principle of natural selection is a greedy philosophy: "Every individual for himself, and the Devil take the hindmost!" A very clear contradiction to the Christian philosophy of love: "Jesus, in his sermon on the Mount, expressed a different opinion" (*CP* 6.293):

> "(...) The Gospel of Christ says that progress comes from every individual, merging his individuality in sympathy with his neighbors. On the other side the conviction of the nineteenth century is that progress takes place by virtue of every individual's striving for himself with all his might and trampling his neighbor

under his foot whenever he gets a chance to do. This may accurately be called, the Gospel of Greed"[18]

It is good to note that in Peirce, individuality, whether within the moral or metaphysical realm, is always less significant for him than that of the continuity of all things. I already mentioned somewhere that Peirce characterizes religion as a purely practical matter, here Peirce appeal directly to religious notion in the context of evaluation of various scientific theories of evolution. Obviously, the gospel of Christ manifested more than a practical moral code for Peirce; it has explanatory power, representing an engaging option to the general perspectives of the existing theories of evolution. Thus, he proceeded to analyze the different theories:

(...) Natural selection, as conceived by Darwin, is a mode of evolution in which the only positive agent of change in the whole passage from moner[19] to man is fortuitous variation. (...)

(...) Mechanism was now known to be all, or very nearly so. All this time utilitarianism —that improved substitute for the Gospel— was in its fullest feather; and was a natural ally of an individualistic theory. (...)

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[18] C. S. PEIRCE, *CP* 6.294, 1893.

[19] The Anglicized form of *moneron*. Allied to protogenes.

Diametrically opposed to evolution by chance are those theories which attribute all progress to an inward necessary principle, or other form of necessity. (...) nothing is due to chance, but that all forms are simple mechanical resultants of the heredity of two parents.(...) Those geologist who think that the variation of species is due to the cataclysmic alterations of climate or of the chemical constitution of the air and water are also making mechanical necessity chief factor of evolution.

Evolution by sporting and evolution by mechanical necessity are conceptions warring against one another. A third method, which supersedes their strife, lies enwrapped in the theory of Lamarck. According to his view, all that distinguishes the highest organic forms from rudimentary has been brought about by little hypertrophies or atrophies which have affected individuals early in their lives, and have been transmitted to their offspring. Such a transmission of acquired characters is of general nature of habit-taking, and this is the representative and derivative within the physiological domain of the law of mind. Its action is essentially dissimilar to that of a physical force;(...)

Lamarckian evolution is thus evolution by the force of habit. Habit is a mere inertia a resting on one's oars, not a propulsion. Now it is energetic projaculation (...) by which in a typical instances of Lamarckian evolution the new elements of form are first created. Habit, however, forces them to take practical shapes, compatible with the structures they affect, and, in the form of heredity and otherwise, gradually replaces the spontaneous energy that sustains them. Thus, habit plays a double part; it serves to establish the new feature, and also to bring them into harmony with the general morphology and function of animals and plants to

> which they belong. (...) Lamarckian evolution coincides with the general description of the action of love.[20]

According to Peirce's interpretation of Lamarck's theory, habit is very important for the explanation of the development of natural forms. Lamarck's theory of the transmission of acquired characteristics describes a process that "is of the general nature of habit-taking" and by itself "essentially dissimilar to that of a physical force"(*CP* 6.299). Peirce regarded habit as a gentle force that still serves to establish patterns of regularity. Yet it is to be differentiated from that spontaneous "energetic projaculation" by means of which the "new elements of form are first created" (*CP* 6.300). Then he proceeded to explain the double function of habit in the circular motion of love. Habit here does not cause things to be, but rather cause things to endure as a continuity of reactions. Habit establishes them, progressively replacing that energy out of which things were originally formed.

Peirce appealed to the Lamarckian theory as well as to the Gospel of John for his agapastic theory of evolution. Lamarck's theory supplants scientifically the conflict between the rival proponents of "evolution by sporting and evolution by mechanical necessity." Thus Peirce rejected chance and necessity as the sole operators of the universe. Instead he focused to a view which included the benefits and excluded the defects, embrace what is most oppose to it as a degenerate

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[20] C. S. PEIRCE, *CP* 6.296-300, 1893.

case of it, and so give the universe life. This is agapasticism: the doctrine that evolution by creative love is of principal importance in the existence and life of the universe. In Peirce, according to Vincent Potter, "only agapasticism satisfactorily accounts for all the various sorts of development going in the universe by admitting both chance and law, but uniting them in and through habit."[21] To Peirce, God creates the world *ex nihilo*, for no habit nor law can cause anything to exist. God is that incomprehensible reality, prior to every first, the ideal limit transcending every actual state of affairs. And divine Love is the creative source of *all* that there is, all possibilities, all actualities and all generalities.

In Peirce there were some manifestations of eastern religions like Buddhism, Hinduism, Islam and the Persian religious group called the Assassins. His scattered remarks on these religious traditions raised interesting questions about his perspective on non-Christian cultures— questions that are not quite easy to resolve. It is difficult to gauge the impact of eastern philosophical traditions on Peirce's thinking. One is made to presume that some classical texts of these traditions must have been accessible to him. There are references in his works to the teachings of Confucius and Buddha. In particular Peirce seemed to have been attracted to the moral

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[21] V. POTTER, *Charles S. Peirce on Norms and Ideals*, University of Massachusetts Press, Amherst 1967, p. 185. See also D. ANDERSON, *Creativity and the Philosophy of Charles S. Peirce*, Martinus Nijhoff Publishers, Dordrecht 1987, pp. 85-121.

wisdom of these religious teachers. He admired the selflessness and the impassive resignation of the Buddha as evidenced by the comments he made in his letters to William James.[22]

Donald Bishop said that indeed there are interesting parallelisms between Peirce's ideas of tychism, agapism and synechism with Buddha's teachings.[23] Kenneth Ketner affirmed that eastern thought influenced Peirce a good deal. Ketner also pointed out the availability in the nineteenth century of translations of eastern texts like the collection of Buddhist materials published by Peirce's editor and correspondent— Paul Carus, entitled *The Gospel of Buddha* in 1894.[24] Hartshorne said that Peirce religious view can be describe as "Buddhisto-Christian, " that is between Christian and Buddhist traditions.[25] Raposa, on the other hand, said that since Peirce died before the history of religion emerged as a vital scholarly discipline, Peirce's knowledge of these eastern

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[22] Cf. C. S. PEIRCE, *L* 224.

[23] Cf. D. BISHOP, "Peirce and the Eastern Thought," *Proceedings of the C. S. Peirce Bicentennial International Congress*, pp. 265-270.

[24] Cf. K. KETNER, "The Importance of Religion for Peirce," *Gedankenzeichen*, R. Claussen-R. Daube-Schackat (eds.), Stauffenburg Verlag, Tübingen (forthcoming).

[25] Cf. C. HARTSHORNE, "Peirce Philosophy on Religion: Between Two forms of Religious Belief," *Peirce Contemporary Thought*, K. Ketner (ed.), Fordham University Press, New York 1995, pp. 339-355.

traditions were vague, quite incomplete, distorted by western concepts and categories.[26] These several favorable references to eastern thought in Peirce, especially Buddhism, were based on what Peirce took as to be affinities with the "doctrine of love" which he saw best expressed in Christianity. For the most part of his writings Peirce identified himself as a Christian and his conception of Christianity as a highly evolved form of more primitive systems of belief (*CP* 6.442). In a letter to Lady Welby, he said: "I think probably Christianity was a higher development out of Buddhism, modified by Jewish belief in a living God" (*SS* 78). Besides, his knowledge of these eastern thoughts was second-hand in comparison to his mastery of medieval materials which he clearly studied in Latin originals. In my opinion, majority of his religious writings were Theistic and Christian.

Peirce also showed a good command of the history of theology and Christianity. He was well aware since childhood of the "war-like" discussions between the Unitarians and the Calvinists and of the other different denominations. "Evolutionary Love" was his contribution to the theological issue of the nineteenth century: evolution, creation and the Genesis story, provoked by Darwin's theory. It was also an expression of his highest disdain for the followers of Auguste Comte and Herbert Spencer who tried to replace religious yearning with dubious sociological laws and mechanical philosophy of evolution.

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[26] Cf. M. RAPOSA, *PPR*, p. 84.

"Logic and Spiritualism" (*CP* 6.557-587) intended for *The Forum* contains scattered remarks about the Presbyterian conflict that erupted in the winter of 1890. The Presbyterian conflict had been going on for many years. Scholars says that this was provoked by a speech of John Tyndall[27] before the Royal British Institution in 1874 and which in effect divided the Christian community. Peirce knew that it occurred "when John Tyndall, in the innocence of his scientific heart, proposed to measure the efficacy of prayer by experimental statistics" (*CP* 1.660).[28]

"Science and Immortality" (*CP* 6.548-556) published in 1887 in the *Christian Register* was critical to both pseudoscientific proofs of immortality and of dogmatic rejections of all religious aspirations. After taking that Catholic miracles to be best attested (in another part he says that its always *sui generis*) he shot potholes through the

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[27] John Tyndall (1820-93), British physicist, born in Leighlinbridge, near Carlow, Ireland; superintendent Royal Institution 1867-87; made important studies of motion of glaciers; his lectures and writings did much to popularize science. His also was the "Tyndall effect"—heat considered as the mode of motion in thermodynamics. Tyndall was among the scientists of the nineteenth century saturated with the mechanicistic philosophy and used it to question his religious beliefs but hesitated to separate himself from the Presbyterian church.

[28] The editors of the *Collected Papers* misdated this essay as written c. 1905, which caused confusion among scholars. Present scholars were able to proved that it was written in the winter of 1890. Cf. "Probing the Communal Mind, *Peirce Project Newsletter*, 2 (1995-96) 2:7.

alleged evidence of communication with the dead by telepathy offered by the English Psychical Research Society, of which William James was president for many years, in the book *Panthasms of the Living*. His scattered writings also about immortality (*CP* 6.519-521, c. 1906) and Miracles (*CP* 6.522-547, c. 1901) is full or references to the Divinity and Resurrection of Jesus — tenets rejected by the Unitarians.

Unitarianism is a system of religious thought which proclaim the belief in one God but rejects the doctrine of the Trinity and the Divinity of Jesus. The first Unitarian congregation —the King's Chapel in Boston— was formed out of the oldest Episcopal parish in The United States in 1785 when the rector, James Freeman, ignored references in the *Book of Common Prayer* to the Trinity and the Divinity of Christ.[29] It seeks to show that genuine religious community can be created without doctrinal conformity. Unitarians evolved into a creedless movement stressing the many forms of divine revelation, the inherent goodness of man and criticize doctrines of Fall, the Atonement, and eternal damnation. It developed from the emphasis on the authority of rationally interpreted scripture to a foundation of reason and experience. What it requires is an openness to divine inspiration. It was most pervasive in American religion, during

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[29] Prominent Americans considered to be Unitarians were George Washington, The Adams (John and John Quincy), John Hancock, Thomas Jefferson, author of the Declaration of Independence, held Anti-Trinitarian ideas, etc.

Peirce's time notably through the Harvard Divinity School reconstituted by Charles Eliot. Its medium for Unitarian expression was the Robert Hibbert Fund who organizes the Hibbert Lectures and publish the *Hibbert Journal* where Peirce published his "Neglected Argument" essay.[30]

Although Peirce may have had some Unitarian ideas, the fundamental thing was his belief in what the Unitarians reject— the Divinity of Jesus Christ, and the Christian doctrine about the Holy Trinity. Scattered remarks alluding to it abound although he did not wrote a treatise about it nor did he develop it systematically.

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[30] Most of the information cited here was taken from my conversations with Rev. Sheldon Bennett, himself a Master of Divinity graduate from Harvard Divinity School. When I asked him about Peirce, He told me that Prof. Peirces —Benjamin and James— were full-blooded Unitarians, while Charles was not, although he held some of the Unitarian ideas, like the no adherence to any creed, the role of reason in belief, etc. like many others who held Unitarian ideas without belonging to a Unitarian Church. Unitarians merged with the Universalists in 1961 and now stresses the religion of the Sermon of the Mount and the oneness of the human family. Rev. Bennett stressed to me that Unitarian Universalist Churches are free churches, whose members come from all sorts of different backgrounds and beliefs who share the genuine concern for this life and the world to pass to their children. Some of the members believe in God, some don't. They preach no rigid doctrine since creation is simply too profound to be captured by man in a narrow creed. They are not about rules, guilt perfection, and the answer to everything. What they are about is being wonderfully and truly human. They seek wisdom and belief that empowers their living for joy and making a better world.

The main point of Peirce's criticisms with this romantic and positivistic movements of the nineteenth century was to dismantle them of their claims to infallible certainty, and therefore keep open the possibility of discovering rational reconciliation of science with religious values.

4.3. The Merging of Science and Religion

The philosophic concern to establish a unification of science with religious and moral values is not new. One of the popular forms in which the harmony between science and religion was assured had been advanced by Rudolf Hermann Lotze (1817-1881), a German philosopher, born in Bautzen, Saxony. Lotze was carefully read and studied in England and America during this period.[31] He assumed that the orderly functioning of nature implied a motivating, ideal principle. Lotze for his "realism," elaborated upon the idea that our world is a mechanical system. But this mechanism and its laws are the products of a universal soul, a will that uses these means to the realization of the good— his "idealism." The world of mechanism and the realm of value are not of separate

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[31] Peirce had some criticisms to Lotze's logic found in *CP* 2.402, 1893; 2.387,1901; and 8.224, 1910. On the contrary, James often singles out for favorable comment Lotze's view of the difference that mind contribute to the ultimate character of reality, Dewey was impressed by Lotze's logic. Santayana wrote his doctoral dissertation on Lotze and Russell treated his doctrines carefully in *Principia Mathematica.*

spheres; there is unity of the two, Lotze affirmed, but this unity transcends knowledge and rational demonstration.

In 1893, fifteen years before the publication of his famous "Neglected Argument," Peirce published in *The Open Court* the articles "Marriage of Religion and Science" (*CP* 6.428-434) and "What is Christian Faith?" (*CP* 6.435-448). Peirce characterized the enduring religious impulse at its best as "a deep recognition of a something in the circumambient All" (*CP* 6.429). Peirce saw religion as a practical matter, and science as a theoretical one. Religion, as Peirce saw it, has a tendency to fix itself conservatively in doctrines. In spite of the fact that this strong origin produces the flourishing of any particular religious belief, no expression of it can be the final truth: "Like a plucked flower, its destiny is to wilt and fade. The vital sentiment that gave it birth loses gradually its pristine purity and strength, till some new creed treads it down" (*CP* 6.430, 1893). Peirce expressed hope in his first public discourse that "when the conclusion of our age comes, and sceptism [sic] and materialism have done their perfect work, we shall have a far greater faith than ever before" (*W* 1.114, 1863).

Peirce believed that the spirits of science and religion were different. He was obviously sensitive to the conflict between religion and science. He explained how difficulty arises when science is rooted in a false philosophy, when scientists rely upon erroneous and excessively narrow premises in

conducting their inquiries.[32] He made strong criticisms also to religion. However, most of Peirce's critique was directed against religious institutions; not against the faith that sustains them, but against the political concerns and tactics of clergymen and theologians (*CP* 6.3). These *Open Court* essays were written in a "negative" manner inasmuch as they challenged (Protestant) theologians' attempts to explicate religion. Peirce objected repeatedly that theologians block the road to inquiry:

> Religious truth having been once defined is never to be altered in the most minute particular; and theology being held as queen of the sciences, the religionists have bitterly fought by fire and tortures all great advances in the true sciences; and if there be no true continuous growth in men's ideas where else in the world should it be looked for?[33]

From his studies of history of science, Peirce saw how frightened theologians were by the unsettling effects of scientific innovations, that they formulated creeds with the sole purpose of "cutting somebody from the Church." Peirce was not attacking creedal affirmations in itself, but rather those narrowly formulated that they precluded genuine community by excluding certain individuals for mistaken and trivial reasons. It is this sort of narrow-mindedness among

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[32] Cf. C. S. PEIRCE, *CP* 6.553ff, 1887; *MS* 866.

[33] C. S. PEIRCE, *CP* 1.40, c. 1892.

scientists and theologians that seem to constitute Peirce's concern.

Precisely, in *The Open Court* articles, Peirce tried his best to avoid any notion of science and religion that might restrict or prematurely delineate the realm of each. So he accepted science as a systematized knowledge as well a method of inquiry. But the method of science is itself a scientific result, the essence of science must be identified with that spirit.

> That which is essential, however, is the scientific spirit, which is determined not to rest satisfied with existing opinions, but to press on to the real truth of nature. To science once enthroned in this sense, among any people, science in every other sense is heir apparent.[34]

In the case of religion, Peirce argued that religion is a matter of religious sentiment or perception giving a clue at the role that instinct plays in religious life:

> And what is religion? In each individual it is a sort of sentiment, or obscure perception, a deep recognition of a something in the circumambient All, which, if he strives to express it, will clothe itself in forms more or less extravagant, more or less accidental, but ever acknowledging the first and last, the A and W, as well as a relation to that Absolute of the individual's self, as a relative being. But religion cannot reside in its totality in a single individual. Like every species of reality, it is essentially a social, a

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[34] C. S. PEIRCE, *CP* 6.428, 1893.

> public affair. It is the *idea* of a whole church, welding all its members together in one organic, systemic perception of the Glory of the Highest — an idea having a *growth* from generation to generation and claiming a supremacy in the determination of all conduct, private and public.[35]

Peirce also identified religion with an idea and with the growth of that idea. He does not mean that religion is something abstract and lifeless, he wants to affirms that religion has "something" that influences the lives of men. Religion involves a feeling for the highest ideals of human life. The ideas that Peirce wants to refer to here are clearly not the ideas as product of human reasoning but rather as the most significant feature of the surroundings within which persons "live and move and have their being" (*MS* 439, 1898). Peirce also emphasized the importance of the church, although he did not specify which church, existing or historical. Raposa says that the church Peirce is referring is an ideal community that must be nurtured and gradually actualized.[36]

Examining the stages of history, Peirce saw the unparalleled growth of science and religion. Science, as it grows, becomes more perfect. On the other hand, religion was seldom seen "so vitalized as to become more and more perfect." Besides, the attitude of men "animated with the spirit of science" was to rush forward, while the attitude of "those

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[35] C. S. PEIRCE, *CP* 6.429, 1893. Italics mine.

[36] Cf. M. RAPOSA, *PPR*, p. 11.

who have interest in religion" was "to press back" (*CP*, 6. 430). Religion was threatened by the advance of science so it was compelled to define her position to the avalanche of new discoveries. In doing so, it committed itself to "sundry propositions, which, one by one, have been, first questioned, then assailed, and finally overthrown by advancing science."

> (...) In this way, science and religion become forced into hostile attitudes. Science, to specialists, may seem to have little or nothing to say that directly concerns religion; but it certainly encourages a philosophy which, if in no other respect, is at any rate opposed to the prevalent tendency of religion, in being animated by a progressive spirit. There arises, too, a tendency to pooh-pooh at things unseen.[37]

Of course Peirce was aware of the different methods employed by science and religion.

> (...) in order to reconcile religion and science, two things, at any rate, would appear to be useful. Science must moderate its mechanicalism, which is no essential attribute of it, but merely a coloring which it naturally acquired during the period from Galileo to Darwin, when mechanics and allied branches of physics where the chief subjects of thought. Against mechanicalism, many great biologists have been all along are today pleading for the admission of genuine spontaneity. Religion on the other hand must moderate its infallibilism, which is only wanto[n] in a moral and practical

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[37] C. S. PEIRCE, 6.431, 1893.

> sense, and to which taken absolutely and mathematically, is merely a vestige of the low culture of the generation that constructed its symbols.(...)[38]

Peirce was aware that the discrepancies of scientists and theologians have torn asunder many minds. He was aware that many of his contemporaries were saturated with the mechanicistic philosophy but were still hesitating to separate themselves from the church. He also lamented that some of them set aside their religious beliefs:

> (...) How many men have said to themselves scientific experience and scientific methods make it silly to believe in anything but matter and motion, —and we must candidly acknowledge it; yet our personal religious experiences bring us into the presence of our Father and our Redeemer, —we do fervently believe that too. (...)[39]

Peirce continued to imply that even though, the dissimilar methods of science and religion put them at odds, and must continue to do so until theologians gives up its hold to infallibilism and dogmatism, still the truth in which religious people believed and that which scientist seek to discover are not two truths but one, a fact that he felt the wise man of faith clearly is able to perceive.

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[38] C. S. PEIRCE, *MS* 866, undated.

[39] C. S. PEIRCE, *MS* 866, undated.

> The day has come, however, when the man whose religious experience most devoutly moves can recognize the state of the case. While adhering to the essence of religion, and so far as possible to the church, which is all but essential, say, penessential, to it, he will cast aside that religious timidity that is forever prompting the church to recoil from the paths into which the Governor of history is leading the minds of men, a cowardice that has stood through the ages as the landmark and limit of her little faith, and will gladly go forward, *sure that truth is not split into two warring doctrines*, and that any change that knowledge can work in his faith can only affect its expression, but not the deep mystery expressed.[40]

Peirce wants to convey that there is no nonreligious reality, and that science is the discovery of God.

> (...) Many great scientists go to church, and there are very unlike what they are in their laboratories. At one time they are studying one aspect of truth, at another time another. To regard either aspect fairly and honestly, the other must for the time be excluded. If they conflict, the presumption, the faith of the scientific man is, that it is because the last word has not been said , on one side or on the other; at any rate, it must be at least hoped that there is an ultimate resting place which will be satisfactory from both points of view. (...)[41]

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[40] C. S. PEIRCE, *CP* 6.432, 1893. Italics mine.

[41] C. S. PEIRCE, *N* 1.155, 1892.

There is a more general point to the pragmatic tone at work here. For Peirce, as I have demonstrated before, theory and practice are distinct from each other. It seems that Peirce wants to insist that theory and practice must be brought into relation despite their distinctiveness, they must be seen as continuous. Theory in this case, has a practical role— of tempering the tenacity of instinctive beliefs and of keeping them open to criticism both as to their content and as to their viability, although it is not always an immediate one.

It is clear that Peirce's religious ideas played an important role in shaping his conception of science. His enthusiasm for science flowed readily from his training and from his capacity for rigorous logical thinking, yet his religious interests were a still deeper commitment. From his youth, Peirce maintained an idealistic religious faith, proudly declaring for realism which he labeled as an 'objective idealism.'[42] He regarded his empirical scientific work, maintaining logical and transcendental interests, as a part of a religious frame motivated by an almost mystical purpose. He himself called his philosophy, "ideal-realism," which he defined as a belief in an ambiguous reality of ideal truth, unmitigated by subjective factors.[43] Yet it is also clear that Peirce's religious ideas were

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[42] C. S. PEIRCE, *CP* 1.20, 1903.

[43] Cf. R. ALMEDER, "Peirce on Scientific Realism," paper delivered in the Charles S. Peirce Sesquicentennial International Congress held in Harvard University on Sept. 5-10, 1989. For the involvement of idealism in Peirce's realism see C. BOLER, *Charles Peirce and*

transformed by his commitments and discoveries in other areas. Peirce was genuinely interested in scientific developments, whatever their religious implication may be. Elsewhere, he thought it reasonable that religious beliefs should be revised or even discarded as a result of a new scientific discovery:

> The only belief you —as a purely scientific man— have about it is that it is adopted in accordance with a method which must lead to the truth in the long run. It is a damnable absurdity indeed to say that one thing is true in theology and another in science. But it is perfectly true that the belief which I shall do well to embrace in my practical affairs, such as my religion, may not accord with the proposition which a sound scientific method requires me provisionally to adopt at this stage of my investigation. Later, both the one proposition and the other may very likely be modified; but how, or which comes nearer to the ultimate conclusion, not being a prophet or a magician, I cannot yet say.[44]

Peirce, then, not only allowed scientific criticisms of religion due to the attitudes of theologians; he himself harshly denounced steadfast dogmatism, especially intolerant forms of belief that block the road to inquiry. Peirce's criticism of theology is specifically aimed to theologians who exhibit

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Scholastic Realism, p. 148. See also G. DELEDALLE, *Charles S. Peirce: An Intellectual Biography*, Petrilli, S. (translator), John Benjamins Publishing Co, Philadelphia 1990, pp. 5-21.

[44] C. S. PEIRCE, *CP* 6.216, 1898.

dogmatic methods or unreligious attitude towards religion. In my view Peirce's attitude cannot be faithfully understood as a refusal to rational reflections on religious topics. Peirce maintained throughout his life a hearty support of the truth and majesty of religion after criticisms have performed their tasks on parts of religion. This is really a difficult area for one to have an adequate balance. In some sense, Peirce's texts can be read as putting stress in his opposition to a Catholic background or as I have been doing along these pages as supporting —in spite of his general unknowing of the Catholic faith— some key issues central to most recent developments in Catholic culture.

> Such a state of mind may properly be called a *religion of science*. Not that it is a religion to which science or the scientific spirit has itself given birth; for religion, in the proper sense of the term, can arise from nothing but the religious sensibility. But it is a religion, so true to itself, that it becomes animated by the scientific spirit, confident that all the conquests of science will be triumphs of its own, and accepting all the results of science, as scientific men themselves accept them, as steps toward the truth, which may appear for a time to be in conflict with other truths, but which in such cases merely await adjustments which time is sure to effect.[45]

Science and Religion to Peirce are two fundamental approaches. They are routes or avenues to the same goal— the Truth. Peirce regards Science and Religion as two modes

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[45] C. S. PEIRCE, *CP* 6.433, 1893. Italics mine

of unification. Science achieve unification through inquiry. Inquiry is collaborative and communal; in order for it to progress, individual must subjugate and sacrifice their individuality, they must initiate inquiries whose results they themselves will not live to see. "The scientific world is like a colony of insects, in that the individual strives to produce that which he himself cannot hope to enjoy (*CP* 7.87, 1898). In another place he remarks individual scientists are "mere cells in a social organism" (*CP* 1.647, 1898). The reward of inquiry is collective; scientists are approaching the exhaustion of knowledge in the sense that, though there will never be a time when all truths are known, yet for every truth there is a time by which it will be known. A truth once known will stay known unless proven otherwise to be false.

On the other hand, the type of religion that Peirce advocates use distinct forms of inquiry and belief: "it is absurd to say that religion is a mere belief. You might as well call society a belief, or politics a belief, or civilization a belief. Religion is a life, and can be identified with a belief only provided that belief be a living belief— a thing to be lived rather than said or thought."[46] Peirce distinguished science from religion right from the very start: "reasoning should not disturb either a Theist's or [an] Atheist's belief" (*MS* 921, 1859-61). In the midst of his scientific education, Peirce was not shy about declaring his confidence in faith and even its potential power to reveal the ideal truths that lay at the heart

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[46] C. S. PEIRCE, *CP* 6.439, 1893.

of his philosophical realism. In religion orienting truths cannot be demonstrated but must be accepted on faith. Faith is "that part of the mind which is in communication with the eternal verities" (*W* 1.78, 1862). Science cannot shake faith once it is assumed, just as science cannot create faith by proving its legitimacy.

Peirce's upbringing and cultural setting inclined him to a Theist's belief, which he maintained with an idealistic, almost romantic devotion, and which was unscathed by his scientific interests. As a young man, he readily thought of solitude as "drawing nigh unto the personality in nature, and that it is, in a humble sense, walking with God" (*MS* 921, 1860). In another occasion, he wrote and believed that if a person honestly looks at nature with its sublimity and beauty his spirit gradually rises to the idea of God:

> "(...) He does not see the Divinity, nor does nature prove to him the existence of that Being, but it does not excite his mind and his imagination until the idea becomes rooted in his heart."[47]

Peirce's own scientific zeal did not restrain his religious beliefs. As a matter of fact, they encouraged each other because of his hope of finding spiritual elements in nature and his religious devotion to truth inflaming his passion for science, an argument that led Corrington to label Peirce an 'ecstatic naturalist.' Peirce's religious impulses, according to

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[47] C. S. PEIRCE, *Charles S. Peirce: Selected Writings. Values in a Universe of Chance*, Wiener, P. (ed.), p. 10.

Corrington, suggest an 'ecstatic naturalism,' in which his awareness of nature's ability to point beyond itself and beyond what natural science can discover.[48] Skagestad, on the other hand, opines that Peirce idealistic and religious interests are more important than his empirical and scientific commitments, which, Skagestad maintains, served as mask which he needed for intellectual respectability.[49]

To Peirce, science aims to discover the nature of things. A prior disposition to cabalistic theories of the universe distorts the method of science. Science is a theoretical matter having to do with the inquiry into the truth of things, while religion is a practical one.

Peirce was not in favor of religions who are against science because they render a great disservice to both science and religion. They interfere with the free and open scientific inquiry by invoking the method of authority. Unscientific religions make unwarranted and misleading claims about the nature of the physical universe. In a similar manner, they do the same about God and the nature of religion. That is why he asked:

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[48] Cf. R. CORRINGTON, *An Introduction to C. S. Peirce: Philosopher, Semiotician, and Ecstatic Naturalist*, Rowman and Littlefield, Lanham 1993.

[49] Cf. P. SKAGESTAD, *Road of Inquiry: Charles Peirce's Pragmatic Realism*, p. 38.

> (...) Am I to be prevented from joining in the common joy at the revelation of the enlightened principles of religion which we celebrate at Easter and Christmas because I think that certain scientific, logical, and metaphysical ideas which have been mixed up with these principles are untenable? (...)[50]

The difficulties admittedly, are serious; but Peirce struggles to conceive an interpretation of both science and religion which would reveal them to be supplementary rather than conflicting. Peirce saw the continuity of science and religion in his own thought as evidenced by the suggestion he made in a 1905 letter to Paul Carus. In that letter he puts together a set of his essays in pragmatism —including a revised version of the "Fixation of Belief"— and that he concludes the set with a new essay on the nature of God.[51] He came to believe that scientific inquiry would ultimately produce insights fully compatible with religious beliefs. Positively, toward the end of his life, Peirce expanded his religious evolutionism into an association of God with the evolutionary growth of regularity and reasonableness in the universe and a belief in a similarity

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[50] C. S. PEIRCE, *CP* 6.427, 1877.

[51] Cf. C. S. PEIRCE, *L* 77, 1905. There are no signs that this new set of essays was completed.

between religious beliefs and the understanding of scientific inference.[52]

In 1905, Peirce prepared some lectures for the Adirondack Summer School. In the lecture entitled, "The Nature of Science," he made a classification of men according to their aims and pursuits in life:

> (...) The first group consists of the devotees of enjoyment who devote themselves to carving their bread and eating as fine bread as they can and who seek the higher enjoyments of themselves and their fellows.(...)
>
> The second group despise such a life and cannot fully understand it. Their notion of life is to accomplish results. They built up great concerns, they go into politics, not as a 'heeler'[53] does, for a living, but in order to wield the forces of state, they undertake reforms of one and another kind. This group makes civilization.
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> The men of the third group who are comparatively few cannot conceive at all a life for enjoyment and look down upon a life of

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[52] For a more detailed study about this topic see J. ESPOSITO, *Evolutionary Metaphysics: The Development of Peirce's Theory of Categories*, Ohio University Press, Athens 1980.

[53] The American slang for a hack politician.

action. Their purpose is to worship God in the development of ideas and of truth. *These are the men of science.*[54]

These men of science, Peirce was alluding to and to which he identified himself to belong, are also men of religion. I some sense, Peirce seeks to maintain religion and science as distinct from each other because both of them have different methods to ascertain the truth. Coincidentally, at the time when he was in Europe, the Vatican Council I was threading on the same line of thought:

> (...) that there is a twofold order of knowledge, distinct not only as regards its source, but also as regards its object. With regards to the source, we know at the one level by natural reason, at the other level by divine faith. With regards to the object, besides those things to which natural reason can attain, there are proposed for our belief mysteries hidden in God which, unless they are divinely revealed, are incapable of being known.(...)
>
> Eventhough faith is above reason, there can never be any real disagreement between faith and reason, since it is the same God who reveals the mysteries and infuses faith and who has endowed the human mind with the light of reason. God cannot deny himself, nor can truth ever be in opposition to truth. (...)
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> Not only can faith and reason never be at odds with one another but they mutually support each other, for on the one hand right reason established the foundations of faith and, illuminated by its

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[54] C. S. PEIRCE, *MS* 1334, 1905. Italics mine.

> light, develops the science of divine things; on the other hand, faith delivers reason from errors and protects it and furnishes it with knowledge of many kinds. (...)[55]

The affinity of Peirce's philosophy with the Catholic orthodoxy sounds striking,[56] more so if it is remembered that there are three papal documents commonly considered to condemn pragmatism: Pope Leo XIII's letter, *Testem Benevolentiae*, to Card. Gibbons, the Primate of the American Catholic Church, and St. Pius X's *Lamentabili sane exitu* and *Pascendi dominici gregis*.

In order to get a clearer vision of that question, it is necessary to explain some highlights of the development of the Catholic Church in the United States.

4.4. Catholicism in the United States in the Nineteenth Century

It is not possible to talk of Catholicism in the United States in the nineteenth century, without taking into account the principles that forms the base on which the nation sustains itself. Among these principles are: the value of individual

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[55] Cf. VATICAN COUNCIL I, Dog. Const. *Dei filius* (24-IV-1870); *DS* 1781-1820. The ones quoted above are 1795-1797.

[56] This is what I have been threading in Peirce's writings from p. 339, that although science and religion are two distinct disciplines, they can go hand in hand in their inquiry. For God is the author not only of the Holy Scriptures but also of the book of nature.

freedom and the importance of personal initiative; the belief that all men are created equal and enjoy the same opportunities (although not all take advantage of it equally); the value of democracy and the responsibility that all have to participate actively in the process of government; the freedom of conscience; the right to choose and practice a religion without being persecuted for it; the freedom of expression; and the freedom of the press. From this body of principles emerged a strong pluralism in The United States since the revolution giving way to another principle: tolerance. In this kind of environment, the only thing that cannot be tolerated is intolerance. Its colonizers and its first settlers, considered the Catholic Church as the greatest symbol of perversion. Of the thirteen original states that comprised the union, only in one of them —in Maryland—was Catholicism allowed. But the restrictive and oppressive environment gave way with the passing of time to the principles mentioned consequently realized in the American Revolution.

4.4.1. The Religious-Socio-Cultural Environment

Until the Revolution, Catholics in the United States were under the rule of an Apostolic Vicar based in London.[57] But with the advent of American independence and the more

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[57] Until 1908, the Catholic churches in the United States was under the Congregation for the Propagation of Faith. It was Pope Pius X's *Sapienti Consilio* that removed its mission status and dependence from the said congregation. Cf. *ASS* 41 (1908):432.

favorable climate for Catholics, Rome felt it was time for the Americans to have a bishop of their own. The man chosen to head the American Catholic missions, was John Carroll (1735-1815). He was a member of the distinguished Carroll family of Maryland and a cousin of Charles Carroll of Carrollton, a signatory of the Declaration of Independence and brother to Daniel Carroll, a delegate to the Constitutional Convention. He was a former Jesuit priest until its suppression in 1773, highly educated, and a man of broad vision and genuine spirituality. In 1789, five years after being named Superior of the Mission in the United States, Carroll was elected by a nearly unanimous vote as the first Catholic bishop for the first diocese— Baltimore, Maryland.[58] His small flock of 35,000 during his consecration, swelled almost six times over on his death in 1815. He founded the school that is now Georgetown University and laid the cornerstone for the basilica of the Assumption, which was America's first Roman Catholic cathedral.[59] He was also instrumental to the creation of the new dioceses of Boston, Philadelphia, New York, and

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[58] It was the product of the petition to Pope Pius VI that at least in the first instance choice of the bishop be left to the priests having the care of souls in America, and that future procedure for the selection of a bishop be determined once the diocese was established. See J. HENNESEY, *American Catholics: A History of the Roman Catholic Community in the United States*, Oxford University Press, New York 1981, pp. 69-88.

[59] Excerpted from *Compton's Interactive Encyclopedia*, Compton's NewMedia, Carlsbad 1995.

Bardstown (now Louisville) and impregnated among American Catholics the basic principle of the separation of church and state. A problem that was to haunt American bishops for many decades surfaced during Carroll's tenure: immersed in the American spirit, Catholic laymen attempted to get control of the property of the church and claimed for themselves the right to choose their own pastors and dominate Church affairs.

Alexis de Tocqueville, during his trip to the United States just before Peirce's birth found American Catholics "very submissive and very sincere," (...) were faithful to the observance of their religion (...) fervent and zealous in the belief of their doctrines," yet "they constitute the most republican and most democratic class in the United States." It came at no surprise for Tocqueville thought that Protestantism promoted independence, while Catholicism emphasized human equality: "it confounds all distinctions of society at the foot of the same altar, even as they are confounded in the sight of God." There were also local factors encouraging the democratic spirit among American Catholics: their poverty, social inferiority and minority status. The Catholic clergy he noticed divided their intellectual world in half: "Doctrines of revealed religion" were accepted without discussion, but "political truths" were left to free inquiry. Tocqueville's impression was that "Catholics in the

United States are at the same time more submissive believers and the most independent citizens."[60]

But it was the first bishop of Charleston (North Carolina, South Carolina, and Georgia), John England (1786-1842), who broke down the walls of prejudice that kept his fellow Americans from a true understanding of the Catholic Church by jumping at any chance to speak before non-Catholics audiences. John England was the first prelate to adapt the Catholic Church to the American democratic spirit, setting up a system of ecclesiastical government that enabled the clergy and laity to participate in formulating diocesan policy. He was opposed to governmental intervention in selection of Irish and English bishops. England was the first Roman Catholic clergyman invited to speak before US Congress 1826 where he gave a two-hour address. He also insisted to the archbishop of Baltimore to gather American bishops in council. The three plenary councils and seven provincial councils held from 1829 to 1884 represented the most persistent and successful exercise of collegiality carried by any group of Catholic bishops during the nineteenth century.

In their work at the councils in Baltimore, the bishops were obliged to adhere to the norms laid down by the Council of Trent (1545-63), and they were concerned with applying

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[60] A. DE TOCQUEVILLE, *Democracy in America*, 2 vols. F. Bowen (translator), Vintage Books, New York 1959, 1: 311f; 2: 28, 30. Prof. Fernando Mugica gave me the orientation of these volumes when I was his student in Sociology.

Trent's decrees to the particular circumstances of the American Church. In doing so, they ranged over a multitude of concerns. They prescribed the proper rites for the administration of the sacraments, determined the age of confirmation, laid down for the reverent giving of the Holy Eucharist to the sick, disapproved funeral orations, ordered confessionals to be erected, etc. Recognizing the importance of marriage, they commanded marriages be celebrated in the parishes of one of the couples marrying, and warned Catholics against mixed marriages while requiring the non-Catholic party in a mixed marriage to allow the children to be brought up Catholic. They also tried to regulate the daily life of the priests, such as the mode of dress (the Roman collar was obligatory for the clergy in the United States since 1884), his type of recreation (forbidding priests to attend theaters or horse races), and the furnishings of his rectory. Most of all, they showed an increasing concern about the dangers to the faith of the Catholic children attending public schools and gradually forged the policy that led to making parish schools mandatory in 1884.[61] The uniform system of discipline enacted by the bishops at Baltimore was a magnificent achievement and laid a solid foundation for the Catholic Church of the United States. This excited fumes from Charles Eliot, Peirce's chemistry instructor and president of Harvard University during his career, who was a strong advocate for

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[61] J. HENNESEY, "Councils of Baltimore," *The New Catholic Encyclopedia*, Catholic University of America (ed.), vol. 2, Schmidt, Berlin 1967, pp. 28-43.

public schools and free-choice declaring that uniform prescriptions of study in secondary schools were impossible, absurd and that inflexible plans of studies prevailed only under religious auspices either in Moslem lands where the Koran prescribes the perfect education to be administered to all children alike or in the curriculum of Jesuit colleges.

The impact in the United States of Pius IX's 1864 *Syllabus of Errors*,[62] in which the Pope had left little doubt about the Roman Catholic Church's opposition to most of the chief tenets of nineteenth century liberalism, was muted since it appeared during the final winter of civil war. But there was a "howl of indignation in the American press," which Martin Spalding, seventh archbishop of Baltimore, attempted to calm with a pastoral letter explaining that Pope Pius IX was concerned with European radicals and not with the American constitution, the separation of the Church and State as known in America, and freedom of conscience, worship, or the press as practiced in the United States. The Archbishop of New York, John McCloskey was not so enthusiastic and even considered it to be ill-timed.[63]

Liberal elements where fast growing also among the lower clergy. Thomas Becker, bishop of Wilmington, Delaware for example arraigned the New York liberal clergy on a string of

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[62] PIUS IX, Enc. *Quanta cura*, (8-XII-1864); *DS* 1688-1780.

[63] Cf. J. HENNESEY, "Councils of Baltimore," *The New Catholic Encyclopedia*, vol. 2, pp. 28-43

charges: they denigrated devotional practices like saying the rosary, wearing scapulars, venerating relics, devotion to saints. They would do away with vestments worn by priests celebrating the Holy Mass and eliminate Latin. They questioned the newly defined dogma of Mary's Immaculate Conception and the Church's teaching of her Assumption into heaven. They accused the Pope of "absorbing all the members and causing atrophy in the Apostolic College." And of course they would oppose the coming definition of papal infallibility.[64]

With regards to the doctrine of papal infallibility, thirty-nine of the forty-nine American bishops at the council judged the move to be at the very least inopportune. Their position was rooted in fear of that assertion of the Pope's infallibility would revive the religious hostility of nativist days dormant in the years immediately following the Civil War. The rest of the American delegation were all-out partisans of a definition. Most of them were Franco-American bishops from Peirce's place—New England, the Pacific Northwest and the Gulf Coast. Although Bishop Richard Whelan of Wheeling, West Virginia and Bishop William Henry Elder of Natchez, Missouri urged greater attention to showing the biblical foundations for the councils' declaration.

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[64] Cf. R. E. CURRAN, "Prelude to 'Americanism': The New York Accademia and Clerical Radicalism in the late Nineteenth-century," *Church History*, 47 (1978): 48-65.

Among the American "inopportunists" was a small group whose apprehensions went further. They shared a concern with historical and theological problems which seemed to them serious enough to argue against the definability of the doctrine. It was not a teaching which they found clearly enough in the church's tradition. This was the content of the two pamphlets distributed in Rome by the most outspoken American opponent of the definition, Peter Kenrick archbishop of St. Louis. In his speech he reminded the assembly that their function was not to write theological treatises, but to declare the faith the church. Bishop Bernard McQuaid of Rochester could not see how the approach taken at Rome safeguarded the collegiality of all bishops reaffirmed in the Second Plenary Council held in 1866.

The Bishop of St. Augustine, Florida, Augustin Verot, holding the inopportunity of declaring the dogma, proposed other topics that affect the Church especially the growing church in the US. He told the council fathers to declare that black people have souls, rather than to struggle with profound German philosophical theories about the human being for there were some in America who deny it. Other topics he dealt with were the prayer-life of priests, the reconciliation between the church and modern science and the affirmation of the unity in a common humanity of black and white races. Bishop John Baptist Purcell of Cincinnati, Ohio was not able to pronounce his prepared paper although he revealed its content on his return after the council that he deposited it with his vote and it was supposed to touch on the relationship between the Church and the State.

When the constitution *Pastor aeternus* was submitted for solemn votation, a large number of the American bishops had already gone home due to the imminent Franco-Prussian war. Some who had the intention of voting against the constitution like Kenrick, Verot and Michael Domenec, bishop of Pittsburgh, Pennsylvania, remitted letters of explanation to Pope Pius IX. Among those who remained, twenty-five voted yes, but one of the two negative votes in the final tally was made by Edward Fitzgerald, bishop of Little Rock, Arkansas.[65]

In spite of this kind of participation of the American bishops in Rome, "the most spectacular development in American religious life in the latter half of the nineteenth century," according to Winthorp Hudson, "was the growth of the Roman Catholic Church."[66] No missionary territory in the nineteenth-century registered more sensational gains than the Catholic Church in the United States. As the American

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[65] Cfs. J. HENNESEY, *The First Council of the Vatican: An American Experience*, New York 1963; H. JEDIN, *Manual de la Historia de la Iglesia*, vol. 7, Herder, Barcelona 1978, pp. 990-992; G. ALBERIGO et al, *Historia de los Concilios Ecuménicos*, Sígueme, Salamanca 1993, pp. 315-333; C. BUTLER, *The Vatican Council*, 2 vols. Longmans, Green & Co., London 1930; R. AUBERT, *Historia de los Concilios*, vol. 2, Eset, Vitoria 1964.

[66] W. HUDSON, *Religion in America, an Historical Account of the Development of American Religious Life*, New York 1965, p. 247. See also T. McAVOY, "The Growth of the American Catholic Minority in the Late Nineteenth Century," *Review of Politics*, 15 (1953): 275-302.

Catholic population grew owing to the mass immigration from Europe, a rivalry emerged within the growing church between the two big groups, the Irish, who dominated the American hierarchy and the Germans. The latter group sought to preserve their religious customs by demanding their own parishes where they could hear sermons in German, confess in German and have their children instructed in German. The problems attached to cultural and linguistic assimilation which plagued Catholicism for the better part of the century, persisted. The Catholic community's house was divided and its internal identity crisis worsened before it got better. And there remained the problem of external image. Long history in America or not, Catholics were perceived as immigrant newcomers, as indeed most of them were. In the face of blaring nationalism, they had still to lay claim to an identity as citizens and to legitimate their existence on the American political and religious scene.

The reaction of ordinary Americans to this avalanche of Catholics was understandably one of concern. I have mentioned already the reactions of the New Englanders. Most ordinary Americans did not relish the prospect of being inundated by people whose habits, customs and religious practices appeared foreign and threatening. Sometimes these vague fears expressed once by Zina, Peirce's first wife, were exploited by unscrupulous demagogues, and mobs would vent their rage on the nearest Catholic institution. In order to survive such hostile surroundings, the American Catholic Church naturally developed a defensive and aloof attitude, turning inward on itself and devoting its best energies to

building up a little world of its own that would provide an alternative to the culture dominated by the Protestants.

There were also intellectuals like Orestes Brownson, a convert to Catholicism[67] who could not reconcile the American spirit with Catholicism:

> I neither indulge the hopes nor cherish the tendencies I did some six or eight years ago (...) I defend the republican form of government for our country because it is the legal and only practicable form, but I no longer hope anything from it. Catholicity is theoretically compatible with democracy, as you and I would explain democracy, but practically, there is, in my judgment no compatibility between them. According to Catholicity all power comes from above and descends from high to low; according to democracy all power is infernal, is from below, and ascends from low to high. This is democracy in the practical sense, as politicians & the people do & will understand it. Catholicity & it are as mutually antagonistic as the spirit and the flesh, the Church and the World, Christ and Satan. (...) Say what we will, we have made

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[67] Orestes Augustus Brownson (1802-1876) was a US writer, born in Stockbridge, Vt. He was a strong advocate of Emerson's transcendentalism, was in turn a Universalist minister, advocate of socialistic theories, and Unitarian organizer of a church of his own in Boston called Society for Christian Union and Progress (1836). Finally he converted to Roman Catholicism in 1844 under the guidance of Bishop John Fitzpatrick of Boston.. He published *Boston Quarterly Review* (*Brownson's Quarterly Review* after his conversion) and wrote several books, including *New Views of Christianity, Society and the Church* (1836) and *The Convert* (1857).

> little impression on our old American population, & what we have made we owe to the conviction that [the] Church sustains authority, demands government, is anti-radical, and anti-democratic.[68]

Rev. Thomas Preston, the New York vicar general and former Protestant, denounced a peculiar kind of Catholicity marked by religious indifferentism, the desire to separate education from religion, a lack of interest in restoring the Pope's temporal power, advocacy of separation of church and state and the overall, but to him a clearly reprehensible, notion that the American form of civil government was best suited to the prosperity of Catholicism.[69]

Meanwhile in 1875, Archbishop John McCloskey of New York was made the first American cardinal. Liberal attitudes continued to manifest like the formation and growth of the first national labor union—Knights of Labor which was headed after 1878 by a Catholic and had a majority of Catholic members. Among the problems of that period were secret societies, inspired by the vaguely Protestant, Anglo-Saxon form of freemasonry. Since the Union needed secrecy to protect their members, they borrowed trappings from the Masonic tradition. The Knights avoided violence, but they

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[68] O. BROWNSON, *Brownson-Hecker Correspondence*, J. Gower-R. Leliaert (eds.), University of Notre Dame Press, Notre Dame 1979, p.291.

[69] Cf. "American Catholicity," *American Catholic Quarterly Review* 16 (1891): 396-408.

were blamed for the labor troubles that scarred the 1880s. There was also the support of Edward McGlynn, a Catholic priest in New York of the single tax doctrine of Henry George. This priest also launched a crusade calling for the fatherhood of one God, the universal brotherhood of man, a Christian community in which all shared in social growth and improvement, denouncing the so-called Christian communities which to him degraded the teaching of Christ into a mere seven-day code of personal conduct— a theme later prominent among Protestant social gospelers.

In the 1880's and 1890's the antagonism between the Irish and the Germans intensified when a number of prelates began calling for an end to separatism of American Catholics and urged them to move into the mainstream of American life. Spearheading this call for the "Americanization" of the Catholic Church in the United States were Archbishop John Ireland (1838-1918) of St. Paul, Minnesota., Denis O'Connell, rector of the North American College in the Vatican City, John Keane (1839-1918), rector of the Catholic University of America, and John Lancaster Spalding, bishop of Peoria, Illinois. Their outspoken friendliness to American and social institutions earned them the name of liberal clergymen in the American press.[70] Their aims were similar to the liberal Catholics in Europe insofar as they shared their desire to reconcile the Church with modern culture. They

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[70] Cf. T. McAVOY, "Americanism, Fact and Fiction," *The Catholic Historical Review*, 31 (1945): p. 136.

wanted the Church to adjust its traditional positions in order to endorse political democracy, modern scientific method of research, efforts at social reform and ecumenism.[71]

In 1889 the Catholic University of America was erected. Credit for the foundation of the university was attributed to these liberal prelates but at the same time they had to defend themselves against the charge of unfriendliness to the Catholic parochial school system. Ireland regretted in a speech the necessity of the separate parochial schools and supported the State's right in education. Behind the accusation of unfriendliness to parochial school was his opposition to foreign language school and churches.

There were also the Lucerne *Memorials* presented by Peter Cahensly[72] to the Holy See deploring the great losses of faith among immigrant population and asked as a remedy that provisions be made for foreign representation in the American hierarchy which would afford more effective recognition to foreign Catholics in United States. What Cahensly was after really was for more bishops of German background in the

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[71] Cf. T. BOKENKOTTER, *A Concise History of the Catholic Church*, Image Books, New York 1990, pp. 328-343.

[72] Peter Cahensly was a wealthy merchant of German nationality. He became interested in the large number of German emigrants leaving the ports of Europe for America and through the St. Raphael Society. He endeavored to provide for their spiritual welfare. See K. BIHLMEYER, *Church History*, V. Mills-F. Muller (translators), vol. 3, Newman Press, Westminster 1966, p. 425f.

hierarchy and separate German parishes. Some American bishops were greatly disturbed by this intrusion into their affairs and rallied to Rome for the rejection of the petitions.

These American liberal Catholics were widely influenced by Isaac Thomas Hecker (1819-1888), one of the most notable converts to the American Catholic Church in the past century. After joining the Catholic Church in 1844, he joined the Redemptorist Congregation and in 1849 was ordained priest. He was a man of action dedicated to the ministry of parochial missions. After a rift with his superiors, he left the community in 1857 and received an authorization from Pope Pius IX to found his own order, the Paulists Congregation, where he started to develop his personal ideas on how the church must adapt to American mentality if she wanted to make any real progress in converting Americans.[73] John Ireland admired Hecker so much and extolled the convert priest as one predestined to teach the Catholic Church on how to adjust to the modern spirit of freedom and democracy.

Archbishop Corrigan of New York and Bishop McQuaid of Rochester, although Irishes, had misgivings to these liberal ideas, together with the bishops of Milwaukee, Frederick Katzer, of Green Bay, Wisconsin, Sebastian Messmer, and

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[73]Cf. J. FARINA, *An American Experience of God: The Spirituality of Isaac Hecker*, Paulist Press, New York 1981. See also V. HOLDEN, *The Yankee Paul: Isaac Thomas Hecker*, Bruce Publications, Milwaukee 1958 and W. ELLIOTT, *The Life of Father Hecker*, Columbus Press, New York 1891.

Winand Wigger of Newark, New Jersey. The mass of German Catholics, the Jesuits, together with Joseph Schroeder, professor of dogmatic theology in the Catholic University of America were likewise unsympathetic to the "Americanists." They accused them of false liberalism, already condemned in the *Syllabus*, as well as of doctrinal minimalism and antipapal tendencies.

The controversy reached Europe during the travel of Ireland to France in the early 1890s.[74] On his way through Paris after an *ad limina* visit to Rome, he was requested to deliver a lecture explaining why the Church flourished so marvelously in America and what was the secret of its success. In an eloquent address delivered in the hall of Geographical Society in Paris, he explained the American form of government, the relationship between Church and State, and the "Church's happy self-government under a constitution which made Caesarism impossible."[75] Ireland was acclaimed by the French liberal Catholics as the symbol of American democracy and viewed by conservatives with scorn. When Ireland arrived in France, he found the Catholic Church in France divided into factions. Conservatives rejected Pope Leo XIII's effort to rally them to the Republic. The "New

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[74] Gerald Fogarty says that Denis O'Connell was the spokesman of Americanism in Rome. See G. FOGARTY, *The Vatican and American Hierarchy*, Hiersman, Stuttgart 1982.

[75] V. HOLDEN, "A Myth in 'L'Américanisme'," *The Catholic Historical Review*, 31 (1945):156.

Christian" movement was announcing that all ecclesiastical formalities should yield to the desire to be "with Jesus," and there were disquieting scholarly rumblings from the university-levels "Catholic Institutes" established in Paris and other cities.

Each year in the decade of the 1890's marked a major stage in the development of Americanist crisis. So Rome sent Archbishop Francesco Satolli to head the apostolic delegation established in Washington in 1893. For the first time the Pope had a permanent representative to deal with internal church affairs. American Catholicism was experiencing direct Roman rule in a way it had never before known. Events in 1895 underlined Roman suspicion of liberal American currents. In the encyclical letter, *Longinqua Oceani*, Pope Leo XIII praised the church's growth in the United States and acknowledged that "(...) the equity of the laws (...) obtained in America and the customs of the well ordered Republic." He was grateful that "unopposed by the Constitution and government of your nation, fettered by no hostile legislation, protected against violence by the common laws and the impartiality of the tribunals," Catholicism was "free to live and act without hindrance." But he warned that American-style separation of church and state was not a model for other societies. He went further to express his conviction that the church in the United States "would bring forth more abundant fruit if, in addition to liberty, she enjoyed the favor of the laws

and the patronage of the public authority."[76] Ireland reacted that the unfortunate allusion to church and state cannot be explained to Americans.

What proved to be the catalyst in the Americanist controversy was the publication in France of a French biography of Isaac Hecker in 1897.[77] The Countess de Revilliasc, Louise de Guérines, wrote it with a preface by Abbé Félix Klein, professor at Paris' Institut Catholique and well-known in liberal circles. Hecker's biography was widely acclaimed and aroused considerable interest. Hecker came through as man of action, the ideal contemporary priest, gifted with intelligence, independence, and individuality, all virtues thought characteristic of a good American. The French edition went through seven quick printings. It aroused a bitter and passionate debate among the French. As Ellis has pointed out, Catholics following the Leo XIII's call to support the Third Republic hailed the account "as a kind of charter for their program for the French church," while royalists and

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[76] LEO XIII, Apost. *Longinqua Oceani* (06-I-1895): *ASS* 27 (1895): 387-400.

[77] The biography was supposed to be a translation of Elliott's *The Life of Father Hecker* but no publisher in France would admit it for it was too long and the subject too specially connected with America will not sell to the public at large in France. See V. HOLDEN, "A Myth in 'L'Américanisme'," *The Catholic Historical Review,* 31 (1945): 154-170.

conservatives "maintained that it contained the seeds of heresy which they characterized under the name of Americanism."[78]

A strong body of opinion hostile to the published book was formed and denounced it as the same condemned heretical liberalism. Bishop James Healy of Portland, Oregon after reading Eliott's biography of the Paulists' founder, worried about Hecker's "spirit of liberty, liberty of spirit if you please," which "led him more than once into words and ways that made his devoted friends tremble."[79] A stream of literature appeared in France accusing Hecker and the ideas of Ireland of propagating erroneous opinions about the role of authority in the Church, of favoring natural over supernatural virtues, and of weakening the dogmas of the Church. The conservative and anti-republican groups found the democratic implications of the new doctrines distasteful and quickly found theological defects in the enthusiastic writings endorsed by Klein. American Catholicism was dismissed as neo-Pelagian and Hecker's confidence in a new age of the Spirit was a revival of illuminism.

The American liberal prelates, particularly Ireland, Keane and Gibbons, admirers of Hecker, did not share the

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[78] Cf. J. T. ELLIS, *The Life of James Cardinal Gibbons, Archbishop of Baltimore, 1834-1921*, Bruce Publications, Milwaukee 1952, vol. 2, p. 50-51.

[79] J. T. ELLIS, *The Life of James Cardinal Gibbons, Archbishop of Baltimore, 1834-1921*, p. 11.

enthusiasm of the European Americanists. O'Connell, for example, attempted to clear the name of Hecker and the American prelates from the extreme charges of their critics at the International Catholic Scientific Congress of Fribourg in 1897. The bombshell that really touched off the bitter part of the controversy was the series of articles written by Abbé Charles Maignen under the pseudonym of Martel and Abbé Georges Peries under the name of Clement in *La Vérité Française* of Paris attacking both Hecker and the doctrine of Americanism. Many of these articles were reprinted by the former in book form and whose contents pictured the founder of the Paulists as holding doctrines concerning spiritual direction and apologetics foreign to the Paulist's own statements. In their new apologetical approach, the Americanists were accused of limiting the external submission to the Church, of advocating a false liberalism in their dealings with non-Catholics, of advocating a complete separation of Church and State, of opposition to the evangelical virtues and older religious orders, and of advocating the practice of active virtues over the passive virtues and the natural virtues over the supernatural ones. When the English translation appeared in the United States, Cardinal Gibbons was compelled to write a letter of protest to the papal Secretary of State for the bitterness of the attack of Maignen's book and especially against the granting of *imprimatur* to the book by the Master of the Sacred Palace. This book created loud reverberations in many parts of Europe and the controversy in European periodicals grew more intense.

Another event also sharpened the European antagonism toward Americans: the four months war of 1898 in which the

United States demolished most of Spain's remaining colonial empire. John Ireland, long active in Republican Party politics, had been asked to use his influence with President McKinley to spare Spain of war and defeat. He failed, and majority of the American bishops rallied round the flag in America's most blatantly imperialist move since the war on Mexico although their division on some internal issues persisted and even grew crude. The Americanists' credit in Rome sank to a new low.

The Pope appointed a commission of cardinals headed by Cardinals Satolli and Mazzella to investigate the situation of the American Catholic Church and study the controversial question. When they were rendered incapable to control the increasingly acrimonious situation, Pope Leo XIII wrote a letter to Card. Gibbons on January 22 1899 named, *Testem Benevolentiae*[80] condemning Americanism.

4.4.2. The controversy of "Americanism"

Pope Leo XIII, in his letter took note of the view of some ideas and tendencies labeled "Americanism" circulating in the Church. The Pope describes this new heresy and their consequent dangers to the faith and the unity of the Church. According to the letter, this new heretical movement consists, mainly, in two beliefs: a) that the Catholic doctrine should be

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[80] Cfs. LEO XIII, *Testem benevolentiae* (22-I-1899); *ASS* 31 (1898-1899): 470-479; *DS* 1967-1976; J. COLLANTES, *La Fe de la Iglesia Católica*, Biblioteca de Autores Cristianos, Madrid 1983 pp. 515-519.

in harmony with the secular atmosphere, not insisting in very unpleasant or impopular doctrines; b) that the authorities of the Church should not exercise their authority on the faithfuls with too much frequency, leaving them greater freedom of thought and action.[81] So then, Americanism could be summarized as the exaggerated effort of modifying the Catholic life according to the necessities of the culture of the United States that time, up to the point that the same Catholic doctrine would appear diluted in the cultural environment and the personal liberty would be considered like more important than the obedience to the authority of the Magisterium; all of which lead in confusing the Church with any another civil institution of the American society.

From this general principle, the Pope continued, those who held this more general error had drawn from it certain faulty conclusions which must be condemned: 1) the Americanist held that external guidance should be set aside for souls striving for Christian perfection since the Holy Spirit gives his grace in abundance without human intervention in the new age; 2) they gave an unwarranted importance to natural virtues, as corresponding better to the needs of the times than the supernatural ones; 3) they esteemed the active virtues over the passive virtues 4) the belief that charisms have more value than the authority and the institution, idealizing the personal initiative opposite the religious institutions, who kill the necessary freedom for the Christian life in the modern world;

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[81] Cf. LEO XIII, *Testem benevolentiae*, *ASS* 471-474.

and 5) they argued that a new method must be developed to win back to the Church those who have fallen. "If this is what people meant of Americanism," the Pope wrote, "then Americanism was to be condemned."[82]

Did the so called "Americanism" really exist in the United States? Cardinal Gibbons, in a letter, told the Holy Father that no American bishop, priest or layman properly instructed in the religion held the doctrines condemned by the papal letter.[83] To the American prelates the condemned doctrine only existed in the minds of certain European writers while to their opponents it constituted a real heresy that was creeping into the American religious institutions.

It is difficult to point out when the term really acquired a religious meaning above its political and social implications. Thomas McAvoy offers some definitions: 1) the ordinary American usage of the word to indicate the citizen's devotion to American political institutions and ideals; 2) the doctrines against which *Testem Benevolentiae* was directed had acquired this name chiefly in the writings of a small group of European liberal Catholics who fostered the idea condemned; and 3) the incidentals of American Catholic life, consisted of certain tendencies and some isolated events observed in American Catholicism toward the end of the nineteenth

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[82] Cf. LEO XIII, Enc. *Testem benevolentiae*, *ASS* 474-479.

[83] This letter, dated March 17, 1899, may be found in the *Catholic Historical Review*, 30 (1944): 246-248.

century which the European liberals took out of context and rationalized into the theological principles of the condemned Americanism.[84] With regards to the first definition, the Holy Father did not in a way condemn the political conditions, laws, or customs by which Americans were governed. The third can be called the "real Americanism" which has never been defined, but may be classified as the effects of new world conditions on the doctrines and practices of the Catholic faith. The second has two faces: the efforts of some American prelates to Americanize the church organization in the United States (it was not really theological); and the attempt of the European liberals to Americanize European Catholicism, particularly by fostering greater cooperation with republican institutions. The latter was a theological controversy fought in French, German and Italian periodicals among the liberal Catholics who claimed that the progress of the Church in the United States was due to certain particular doctrines they dubbed as "Americanism." In France, Americanism included two distinct groups: one favoring greater cooperation with the republican government, the other tending towards heretical modernism. In Germany, Americanism was associated with the modernist who sought a radical reformation in doctrine, particularly the Church's attitude toward the inspiration of the Sacred Sciptures. In Italy, Americanism was concerned with the separation of the Church and State and the elimination of

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[84] Cf. T. McAVOY, "Americanism and the Frontier Catholicism," *Review of Politics*, 5 (1943): 275-301.

the temporal powers of the Holy See.[85] The conservative European Catholics sought the condemnation of the same doctrines as heretical.

The controversy in the United States was chiefly over the "Americanization" and not Americanism of theological connotations. What some American bishops did was to foster political and social Americanism among the newly-arrived Catholic immigrants. But according to McAvoy, to say that the political and personal prejudices arising out of the opposition to Americanization were the only American reality does not do justice to the ability and zeal of the Catholic hierarchy and press of that day. He sees that American Catholicism of the 1890's did really have this distinct characteristics— the third kind of Americanism, quite distinct from the political and social Americanism and from the theological opinions formulated in Europe. He considered this Americanism which the European religious writers rationalized into their heretical opinions can be considered as the effects of the new world conditions of the American frontiers on Roman Catholicism. To McAvoy, these peculiarities really existed and have striking resemblance to the doctrines condemned by the apostolic letter. There were tendencies toward the condemned Americanism in the American Catholicism of the 1890s. These were mostly indifferent in themselves, being for the most part unconscious

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[85] Cf. T. McAVOY, "Americanism, Fact and Fiction," *Catholic Historical Review*, 31 (1945): 133-153.

developments brought about by such new world conditions as frontier primitiveness, large scale exploitation of vast national resources, and the progress of industrialism. These tendencies were entirely unrehearsed and unplanned and consisted mostly of unconnected incidents.[86]

Around this time William James was also popularizing pragmatism. James felt the need to change the traditional system of philosophy taking into account the scientific spirit of the time and incorporating the theory of evolution. The American Catholics did feel also that with its mechanization and the marvels of science, the modern world called for modifications in religious living. James was also promoting within his pragmatism the importance of action as an end. Similarly, Americanism, according to the Pope's letter, was vying for the unwarranted importance of active virtues, as corresponding better to the needs of time. Peirce, as pointed out in the second chapter rejected action to be the end of thought. It can be granted that Americans of the nineteenth century placed too much faith in "doing" rather than in "thinking" and American Catholics might have been affected by the spirit of the times despite themselves.

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[86] For more information on how the Church in the United States sought responses to modern problems and how she provided clerical training to the growing clergy, see J. WHITE, *The Diocesan Seminary in the United States*, University of Notre Dame Press, Notre Dame 1995, pp. 163-264. Also T. McAVOY, "Americanism, Fact and Fiction," *Catholic Historical Review*, 31 (1945): 133-153.

Americanism appeared once in Peirce's writings within the period of the controversy. Yet, it has a very different meaning from any of the discussed above. Peirce's definition of Americanism is "the worship of business, the life in which the fertilizing stream of genial sentiment dries up or shrinks to a vil [sic] of comic, tit-bits (...)" (*CP* 1.673, 1898). In my opinion this definition is related to the social Darwinism which he labeled in "Evolutionary Love" as the "Gospel of Greed." There is no evidence that Peirce was personally involved in the Catholic controversy. Nor did he has contact or dealings with the personalities implicated. Nor was there a mention or reference to Peirce or his ideas by those embroiled.

The war with Spain from April to August 1898 initiated the debut of the United States as a world power. American Catholics supported the war. In the United States the issue seemed clear: it was a contest between "all that is old and vile & mean & rotten & cruel & false in Europe" and "all that is free & noble & open & true & humane in America."[87] Aside from the Catholic soldiers, Catholic participation were also felt in the Volunteer chaplains and nursing sisters who gave their services at Tampa, Florida, the principal port of embarkation for Cuba and elsewhere, for the typhoid and other plagues that swept the army camps. The arrangement of peaceful capitulation of Manila was credited to a Catholic army chaplain, Fr. William McKinnon. This priest rapidly

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[87] G. FOGARTY, *The Vatican and American Hierarchy*, Hiersman, Stuttgart 1982, p. 280.

worked himself to death organizing schools and relief programs in Manila where he died in 1902. Archbishop Placide Chapelle of New Orleans became apostolic delegate from 1899 to 1901. By 1903, Fr. Jeremiah Harty from St. Louis became the archbishop of Manila. Inevitably, American Catholics became involved in the emergence of the United States as an international power. In the Philippines, American-style of government and secular public schools where established. Protestant missionaries were sent as President McKinley explained the American policy to a group of Methodist clergymen: "There is nothing left for us to do but to take them all [the Philippines] and to educate the Filipinos and to uplift and civilize and Christianize them." He seemed to forget that Christianity had reached the Philippines a good fifty years before John Smith saw Jamestown.

Although majority of the Americans supported the intervention to free Cuba, Philippines, Puerto Rico and Guam from Spain, they opposed imperial expansion. John Lancaster Spalding, was the lone American bishop who opposed the colonial acquisitions of the United States. He extolled his flock in Peoria that real service of their country demanded putting love of truth first. In another occasion, he reminded a rally that "we have always believed in human rights, in freedom and opportunity in education and religion and we have invited all men to come and enjoy these blessings," but in American tradition these were not "articles to be exported and

thrust down unwilling throats at the point of a bayonet."[88] There were also for example the Boston Brahmins and New England anti-Imperialist League. William James on March 1, 1899 wrote a letter of protest of the American handling of the Philippines to the *Boston Evening Transcript*: "We are now openly engaged in crushing out the sacredest thing in this great human world— the attempt of a people long enslaved to attain the possession of itself, to organize its laws and government, to be free to follow its internal destinies according to its own ideals (...)."[89] Peirce was aware of this also. He used it to illustrate an analogy:

> (...) In such a sense, what two things in the world are independent? Change the problematic madness of Hamlet into the pacification of the Philippines, and it will become logically inconsistent with the continuance of great disturbances there. But change the doubtful *representation* by Shak[e]spe[a]re that the fictitious Hamlet was unhinged into the *representation* that the Philippines were pacificated in 1901, and it will not have the slightest logical consequence for the real state of things. (...)[90]

In this atmosphere the controversy of Americanism died down. European scholars have catalogued the so-called

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[88] Cf. D. SWEENEY, *The Life of John Lancaster Spalding: First Bishop of Peoria, 1814-1916*, New York 1965, p.249-257.

[89] CF. R. B. PERRY, *The Thought and Character of William James*, vol. 2, p. 310.

[90] C. S. PEIRCE, *N* 3.81-86, 1902 ;*CP* 8.129, 1902. Italics his.

Americanist episode in the history of the Catholic Church in the United States as a prelude to the predominantly European Modernist crisis in the first decade of the twentieth-century. It was certainly a part in the same historical movement, an effort to establish a contemporary identity for an ancient church, but few of the actors or their concerns are the same. Some Americanists knew some Modernists and they shared occasional sympathies, but the movements which followed one another chronologically, were "contiguous" rather than "continuous." American preoccupations did not run to immanentist philosophy and historico-biblical criticism. Their concern was the church's ability to express itself in and to the contemporary political, intellectual and social world. They resonated with the social consciousness which gave birth to the Protestant social gospel, of which Catholics like Fr. McGlynn were indeed precursors.

4.4.3. "Modernism" and American Pragmatism

While William James was busy lacing his pragmatism with strong moral and religious bent along with his personal uprightness and love for his fellow human beings, which prompted him to engage in crusades for moral regenaration, social justice and political honesty, in Europe pragmatism had a meandering development. It was initiated first in response to the popular expression by James, who was citing or quoting Peirce, and by Schiller's energetic advocacy of his pragmatic humanism. It also is derived from the complex background of post-Kantian romanticism and idealism and various forms of evolutionary thought. A common denominator is aside from the same terminology— that both are expounded and

explained in numerous ways due to the disparate classifications of their ideas by historically minded critics. It was also due to the open attitude of James to all sorts of allied intellects into the pragmatic camp.

In the preface to his *Pragmatism: A New Name for Some Old Ways of Thinking* published on April of 1907, James spoke of "the pragmatic movement" as indubitably having "rather suddenly precipitated itself out of the air." He regarded the "movement" as a collective and combined expression of a "number of tendencies that have always existed in philosophy," this expression coming from so many countries and from so many points of view, that much unconcerted statement have resulted." James included in the references to the literature of pragmatism books and articles by John Dewey and Ferdinand C. S. Schiller. Included also were the names of Gaston Samuel Milhaud, Edouard Le Roy, Maurice Blondel, Bernard de Sailly and Giovanni Papini.[91] Some of these names were prominent in the Roman Catholic's Modernist controversy.[92]

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[91] Cf. JAMES, W., *The Work of William James: Pragmatism*, vol. 1, Burkhardt, F. et al (eds.) Harvard University Press, Cambridge 1975, pp. 4-6.

[92] The books C. IZQUIERDO, *Blondel y la Crisis Modernista: Análisis de Historia y Dogma*, EUNSA, Pamplona, 1990 and R. GARCIA DE HARO, *Historia Teológica del Modernismo*, EUNSA, Pamplona 1972, are excellent and thorough studies of this subject matter.

Maurice Blondel (1861-1949) argued for the primacy of will and action in the furtherance of life in his book, *L'Action: Essai d'une critique de la vue et d'une science de la pratique*, published in 1893. He also suggested a voluntaristic and activistic philosophy of knowledge and reality addressed against what he took to be intellectualism and rationalism of the past century. Blondel was the founder of the "philosophy of action" school which became the center of a liberal Catholic group in France.[93] Edouard Le Roy was also a member of the said school. The school flourished in the years between 1900 and 1906 having the organ *Annales de philosophie chrétienne*. This group was in turn part of movement French Catholic Modernism.

Modernism in the United States is understood in relation to the problem of belief and limits of cognition. The idea of order and objective truth becomes untenable to the modernist, as do all traditional modes of acquiring knowledge. Modernism arose in the late nineteenth century when Darwinism challenged the idea of divine creation and left the religious dogma in confusion. Man without God was also left wandering between a world that has been lost and a world that has yet to be found. With God dead, the problem of

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[93] Cfs. W. HORTON, *The Philosophy of the Abbé Bautain*, New York University Press, New York, 1926, pp. 290-296 and J. HOURTON, "Blondel y Blondelismo," *Gran Enciclopedia Rialp*, vol. 4, Rialp, Madrid 1987, pp. 326-330.

creating meaning fell to the human race,[94] who gazed into the void to see if the intellect could be at home with the unknown and face the look of death. Modernism is the consciousness of what once was presumed to be felt absent and is now seen as missing. It might be considered as a series of felt absences, the gap between what we know is not and what we desire to be. That is knowledge without truth, power without authority, society without spirit, self without identity, politics without virtue, existence without purpose and history without meaning.[95]

The Modernist movement in France was an attempt to reconcile the tradition and faith of the Catholic Church with evolutions in science and historical and Biblical criticism and research, with a radical social movement, and with the new philosophy of action with metaphysical and theological doctrines, its reinterpretation and defense of religious belief. The articles by de Sailly mentioned by James constitute an

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[94] This is exemplified in American literature by Herman Melville (1819-1891), author of *Moby-Dick* (1851), a romantic novel telling the adventures of Captain Ahab's vengeful search for the white whale which had maimed him. I read this novel when I was a boy and found it as an exciting adventure story. Rereading it recently, I found it is a profound study of man's struggle against the forces of evil and his struggle to give meaning to his existence. Emily Dickinson's (1830-86) poems are of this line too.

[95] Cf. J. HIGGINS, *The Promise of Pragmatism: Modernism and the Crisis of Knowledge and Authority*, University of Chicago Press, Chicago 1994, pp. 1-21.

exposition of the program and aims of the philosophy of action school. According to de Sailly the philosophy of action precisely is composed of five elements: a critique of immediate consciousness or common sense; a critique of science; a critique of traditional epistemology; a new moral and metaphysical dogmatism; and a philosophic apologetic for the Christian faith.[96]

How and in what sense one of these elements related to American pragmatism? As to the first element, the philosophy of action agreed with Henri Bergson[97] in that consciousness cannot be treated as a material spatial, and mechanical object. Just like Bergson, the philosophy of action to be a true philosophy of reality is concerned with the rectification of false data of the sense and consciousness. As to the second element, the position argued was that scientific theories are schemes and points of view whose purpose was to solve certain practical problems. A scientific construction is true if it fulfills the purpose for which it was made. In the articles of Le Roy cited by James, Le Roy said that scientific truths is the "growing success of our conquest of the world and thus scientific truth resembles moral good: one does not receive it from without, one acts it and makes it. James vacillated on

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[96] Cf. W. HORTON, *The Philosophy of the Abbé Bautain*, pp. 291-294.

[97] In his *Les données immédiates de la conscience*. The renowned Bergson (1859-1941) although not a Catholic was much closer to the center of the controversy. He was a friend of William James.

this idea, but he sometimes affirmed the representative and the copying nature of ideas.

The third element repudiates the theory of ideas as copies, representations and images of objects. It also criticizes the traditional theories of truth according to which truth consists in correspondence of an idea with an object. In this critical notion of ideas the school of action and American pragmatism agree. The agreement seems to have been arrived at independently and in different ways with different consequences in each case since there is no evidence of a route of influence between the school of action and American pragmatism. Blondel construed as phases or integral parts of the totality of action that characterize the development of life, instead of regarding ideas as copies of objects. An idea is a "movement, a means, in the development of life, which it illuminates and fathomed." Ideas are ways in fathoming life, and the truth of an idea depends upon its functioning. Another point of interest is that this version of ideas and their function and truth was the theory called by Blondel as "pragmatisme" which he stopped using when he discovered how James was advocating pragmatism.[98] However, when one looks a little bit closer for some account on the meaning of action, there is no striking resemblance to Jame's pragmatism. Blondel remains somewhat vague as to the nature of action. "I understand by action (...) that which envelopes the intellect, preceding it,

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[98] Cf. A. LALANDE, "Pragmatisme et Pragmaticisme," *Revue Philosophique de la France et de l'Étranger*, 61 (1906): 121-146.

following it and surpassing it; that which consequently in thought is an internal synthesis rather than an objective representation."

Continuing with Blondel's philosophy of action, the fourth emerged from the critique of the first three elements. The conviction is that reality cannot be obtained by reason or by traditional techniques of intelligence and science; it is attained by and through action. Instead of ending in skepticism as to what can be known in reality and instead of accepting a relativistic analysis of knowledge, the philosophy of action affirms a new moral and metaphysical thesis. The Absolute is revealed to us through action. Ultimate nature of the universe is attained in the process of discovering what attitude we should take in the world as it confronts us. The attitude is the result of an act of will and faith. The right philosophy is the product of the right practical attitude toward the world and our way of acting; one who takes a wrong attitude ends with an erroneous philosophy and way of thinking. As a moral and metaphysical corollary in this philosophy, the right practical attitude to take is a Christian faith in God, so the fifth element in the philosophy of action is the defense of the truth of Christian faith, drawn from the other philosophical points.

The Decree *Lamentabili sane exitu* of the Sacred Congregation of the Holy Office enumerates and condemns the principal modernistic errors said to be culled from Modernist writings. The 65 errors listed were mostly taken from the works of Loisy, Le Roy and Tyrrell can be classified into four groups: In the first place, relating to the Revelation: denial of the divine inspiration of the Sacred Scriptures; independence of the critique concerning the Magisterium;

ignorance of the historic truth of the Gospels, that they would only narrate the religious experience of their authors, etc. In the second place, errors relative to the Church: negation of her divine institution; her structure and her dogmas should be mutables, like in any human society; the traditional Catholicism would not be reconcilable with the science. In the third place, errors concerning Christ: did not resurrect by Himself, neither is there certainty in his virginal conception, nor his divinity, unless it is understood like taken from religious experience, that is to say progressive creation by the conscience of the faithful. And in the fourth place, errors on the Sacraments: that they help the soul to feel always the beneficent presence of the Creator, but they are not of divine institution, rather discipline of the Church, to be administered late, like the confession and the matrimony, etc.[99]

It is true that these affirmations are not clearly contained with equal clarity in the works of the Modernists. In the Roman Catholic Church's condemnation of Modernism, the philosophy of action was held to be the agnostic source of the errors of modernism as a whole. Pope Pius X's *Pascendi dominici gregis* definitely condemn the modernist movement. The Encyclical considers the important role of the philosophical posture of its protagonists. It makes a scheme in which, after exposing their philosophic foundation, examines in detail how the theological, critical and apologetic

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[99] Cf. CONG. OF THE HOLY OFFICE, Dec. *Lamentabili sane exitu* (3-VII-1907); *DS* 2001-2065.

elaborations relies on it. It characterized modernism as the attempt of adapting the faith to the modern thought: the acceptance of said thought and the attempt to siphon the faith to their categories are the two basic postulates of the modernist movement. "All modernists want to be and pass as doctors of the Church (...) with grandiloquent words exalts the modern philosophy and (...) from the consortium of the false philosophy with the faith form their system, replete of errors and so big errors." Their aspiration when they speak of renovating the theology, is nothing but "to take the modern philosophy as foundation, mainly in the seminaries, (...) to teach modern philosophy to the youth as the one and only true philosophy that corresponds to our times." They censor the Church, "because She stubbornly refuses to accommodate Her dogmas to the philosophical modern opinions," in spite of their inevitable necessity, because "man does not suffer in itself duality: by which the believer experiences an internal empire that obliges him to harmonize faith with science, so that it does not differ from the general idea that gives science of this universe. From which it is deduced that science is totally independent of faith; but that this, on the contrary (...) should subjected to it." In summary, for their philosophy, modernist are not interested in "the Truth in itself, but to their subjective truth, product of the internal feeling and of action (...)."[100]

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[100] PIUS X, Enc. *Pascendi dominici gregis* (8-IX-1907); *DS* 2071-2109.

Among the American pragmatists, it was James who was interested in the nature and validation of religious belief in ways that avoided the reduction of belief into muscular tensions or ended in agnosticism and suspension of belief. He emphasized the practical effect, the working consequences of religious belief as a condition of truth. James tried to identify the truth of an idea with its operative practical working consequences.[101] This theory of truth has brought down a torrent of criticism at its inception coinciding with the Modernist condemnation. Under the spreading influence of pragmatism at that time, truth became the hotly contested issue.[102] Historically, it was this aspect of American pragmatism, rather than its conception of method and of

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[101] Cfs. DE TORRE, J., *William James: Pragmatism*, Southeast Asian Science Foundation Inc., Manila 1990, pp. 61-69 and H. THAYER, *Meaning and Action: Critical History of Pragmatism*, Hackett Publishing, Indianapolis 1984, pp. 147-164.

[102] Pope John Paul II in a Speech before the UNIV Congress of 1980 said: "One would think that the subject of truth has a very special place in what is, by its very nature, the place where knowledge and culture are elaborated, that is at the University. But what is truth? You perhaps witnesses how no question more than this one, such an ancient one and so natural to man, arouses such perplexity and indifference in the circles of your society, weakened by pragmatism, which tends to express this fundamental question in the following terms, which are very different: What is the use of truth?" See JOHN PAUL II, "La Dimensione Morale dello Studio e della Ricerca," a speech before the participants of the 1980 UNIV Congress (1 IV 1980), *Insegnamenti di Giovanni Paolo* II, vol. 3-1, Libreria Editrice Vaticana, Vatican 1980, pp. 780-787. *IGPII* from here on.

meaning that came in for most criticisms. Yet even this theory is not the same with that of the philosophy of action condemned by the Church. The philosophy of action school held that a test of practical benefit was relevant to determining the truth of religious belief. They maintained that if an idea or belief were really true, practical and beneficial consequences served as evidence of that truth.

As Horton says, "actually, we have in pragmatism and the philosophy of action two closely related but relatively independent trends with a larger, world-wide movement for which we have no name in English, but which is often referred to in French as 'pragmatisme.'"[103] A closer look reveals only rather general and superficial resemblance with what the American pragmatist had been advancing. There was a critical reaction to an earlier rationalism; a recognition of the purposive and practical character of thought; an interest in the function and behavioral aspects of belief; a concern with the relation of scientific knowledge and moral beliefs. But as to how these issues were conceived and resolved especially the last, American pragmatism and French school of action have little in common.

Neither do the American pragmatists are in agreement in these aspects. Peirce for his part, as I have presented even tried to rename his pragmatism for the differences and called it pragmaticism. André LaLande comments on the difference

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[103] W. HORTON, *The Philosophy of the Abbé Bautain*, p. 294.

between Peirce's pragmaticism and Blondel's philosophy of action:

> M. Blondel's pragmatism rests on an entirely different principle than Peirce's: it consists of choosing through action, something of supra-phenomenal, from which we cannot free ourselves, and the analysis of which inevitable carries us, if we wish to be logical, even to the necessity of religious faith. "By his voluntary action, man transcends phenomena; he cannot equal his own exigencies; he has in himself more than he alone can make use of (*L'Action 324*)." This apologetic undoubtedly rejoins, definitively, what has been gathered from Anglo-American pragmatism. It seems to me, however, to differ from the latter in a profound way in its spirit and its method. That is why I do not seek to class it in the course of doctrines in question. These are two parallel currents which are only joined at their source.[104]

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[104] A. LALANDE, "Pragmatisme et Pragmaticisme," p. 123n. 1: "Ce pragmatisme de M. Blondel repose sur un tout autre principe que celui de M. Peirce: il consiste à montrer, dans l'action, quelque chose supra-phénoménal, auquel nous ne pouvons nous soustraire, et dont l'analyse nous entraine forcément, si nous voulons être logiques, jusqu'à la nécessité de la foi religieuse. 'Par son action voluntaire, l'homme depose les phénomènes; il ne peut égaler ses propres exigences; il a en lui plus qu'il ne peut employer seul (324).' Cette apologétique rejoint sans doute, en definitive, celle qu'on a tirée du pragmatisme anglo-américain. Elle me semble pourant en différer d'une façon profonde par son esprit at sa méthode,C'est pourquoi je ne cherche pas à la classer dans le courant des doctrines en question. Ce son deux fleuves parallèles qui ne se rejoignent qu'à leur embrochure."

It was not the pragmaticism of Peirce that related American pragmatism to French 'pragmatisme,' nor was it James' more controlled discussion of pragmatism as a critical method in philosophy. It was rather James' defense of the will to believe, taken as an affirmation of willing and acting as the creative life of man, James's romantic suggestiveness and the very language he used to describe our activity of making reality, of beliefs that create their verifying facts, of how he make truth, that captured the attention of the European continent. It was this aspect of James' temperament and philosophizing which was criticized by Peirce but appreciated by Schiller and Papini. The latter two were exponents of pragmatism in their respective country. Were their pragmatism similar to that of Peirce's?

Ferdinand Canning Scott Schiller (1864-1937) was considered to be the famous pragmatist outside the United States. A former Oxford fellow in Corpus Christi College and outspoken critic of the Oxford Absolutism or the Oxford Hegelians, he went to Cornell University and spent the last ten years of his life teaching at the University of Southern California. His contact with American pragmatism was from William James with whose friendship started in 1897[105] and his reading of James' *The Will to Believe*. To Schiller, who was, and felt himself to be, something of an outcast in English philosophical circles, James' friendly encouragement must

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[105] Cf. R. B. PERRY, *Thought and Character of William James*, vol. 2, p. 166.

have meant very much. After a critical discussion of James' *The Will to Believe*, he began to see clearly James' significance of pragmatism and proceeded to develop it to his humanism which coincides with pragmatism at important junctures in the theory of knowledge.

Peirce was aware of this and even knew some of the works of Schiller, but just like in the case of James, Schiller's humanism goes beyond what Peirce conceived of pragmatism:

> The famed psychologist, James, first took it up, seeing that his "radical empiricism" substantially answered to the writer's definition of pragmatism, albeit with a certain difference in the point of view. Next, the admirably clear and brilliant thinker, Mr. Ferdinand C. S. Schiller, casting about for a more attractive name for the "anthropomorphism" of his Riddle of the Sphinx, lit, in that most remarkable paper of his on "Axioms as Postulates," upon the same designation "pragmatism," which in its original sense was in generic agreement with his own doctrine, for which he has since found the more appropriate specification "humanism," while he still retains "pragmatism" in a somewhat wider sense. [106]

As to Schiller's involvement with the British modernists George Tyrrell, whose works were condemned by *Lamentabili* and *Pascendi*, and Friedrich von Hügel, there is

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[106] C. S. PEIRCE, *CP* 5.414, 1905, see also *CP* 5.466 and *CP* 5.494, c. 1907 where Peirce analyzed Schiller's seven definitions of pragmatism.

no evidence that Schiller was in touch with them. But there is a letter by Tyrrell to James.[107]

Pragmatism in Italy prospered with great vitality and promise in roughly the first decade of the nineteenth century. It was composed of the "little band of pragmatist" who published the monthly journal *Leonardo* at their own expense and carried a very serious philosophic movement apparently inspired by James and Schiller. The members of *Leonardo* group included Giovanni Papini (1881-1956), Giuseppe Prezzolini, Giovanni Amendola, Giovanni Vailati (1863-1909) and Mario Calderoni (1879-1914). Just like the former pragmatic groups, the *Leonardo* group had varied pragmatic trends— the first two were for the imaginative, "pragmatista majica," Amendola was considered to be the moderate, while Vailati and Calderoni represented the logical, analytical and scientific development of Italian pragmatism or the "pragmatista logica." Vailati and Calderoni were influenced by Peirce's pragmatism. Calderoni was in correspondence with Peirce,[108] and both also had a common intellectual friend in the person of Lady Welby.[109] Vailati recognized Peirce as the

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[107] Cf. T. LOOME, *Liberal Catholicism, Reform Catholicism, Modernism: A Contribution to a New Orientation in Modernist Research*, Matthias-Grünewald-Verlag, Mainz 1979, p. 217.

[108] Cf. C. S. PEIRCE, *L* 67. Also *CP* 8.205-213, c. 1905.

[109] It is believed that Vailati and Calderoni must have received information of Peirce and Russell through Lady Welby with whom she kept up a correspondence. James received articles from Vailati and

initiator and promoter of an original trend in logico-mathematical studies. He was among the very few pragmatists, who, like Peirce, had a good grasp of mathematics and an appreciation of the formal techniques of mathematical logic. Vailati made important contributions to mathematics and the foundations of geometry. [110]

Generally, among the Italian pragmatists, there was sense of liberation from the tradition-bound philosophic history of Catholicism. For Calderoni and Vailati this new sense of freedom and exploration was realized less in the romantic action and anarchic myths by Papini. Rather it was felt as a breaking out from sterile formulas and the mechanical, repetitious methods of rationalism, and a directing of thought about science, society and religion in concepts relevant to and guided by experience, in the manner so successfully practiced in the sciences. [111] But the movement did not last. The Church's condemnation of the Modernist movement made pragmatism in Italy suspect, for some alliance between pragmatism and Modernism was established in Italy as well as in France. In a draft letter to Calderoni Peirce was making his

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Calderoni and later passed them to Peirce. He also encouraged them to send their works directly to Peirce.

[110] Cf. A. SANTUCCI, *Empirismo, Pragmatismo, Filosofia Italiana*, CLUEB, Bologna 1995, pp. 141-181.

[111] Cf. A. SANTUCCI, *Il Pragmatismo in Italia*, Il Mulino, Bologna 1963, pp. 200-209. See also. G. GULLACE, "The Pragmatist Movement in Italy," *Journal of the History of Ideas*, 23 (1962): 91-105

position clear about the difference of his pragmatic conception with the other pragmatisms:

> I have delayed thanking you, as I now very warmly do, for sending me the three numbers of *Leonardo*, and for your too flattering references to my formulation. In the April number of the *Monist* I proposed that the word "pragmatism" should hereafter be used somewhat loosely to signify affiliation with Schiller, James, Dewey, Royce, and the rest of us, while the particular doctrine which I invented the word to denote, which is your first kind of pragmatism, should be called "pragmaticism." The extra syllable will indicate the narrower meaning.[112]

Leonardo died in 1907, not only because *Pascendi* but most probably on account of the loss of direction and of the increasing philosophic dissension among the "pragmatista majica" of Papini and Prezzolini (allied to the pragmatical lines of James and Schiller) and the "pragmatista logica" of Vailati and Calderoni (allied to the Peirce's pragmaticism). Two years later, Vailati met an untimely death and Calderoni followed in 1914, Prezzolini was converted to Crocian idealism, Amendola became a statesman, and Papini in the latter part of his lifetime was converted to Christian mysticism.[113]

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[112] C. S. PEIRCE, *CP* 8.205, c. 1905.

[113] Cfs; G. GULLACE, "The Pragmatist Movement in Italy," pp. 91-105; H. THAYER, *Meaning and Action: A Critical History of Pragmatism*,

Suspectingly, Peirce was aware of the American pragmatism's involvement with the European Modernist movement. It could also be that he was aware of the condemnation made by the Roman Catholic Church on Modernism especially Blondel's philosophy of action[114] for he ended his "A Neglected Argument for the Reality of God" published almost a year after *Pascendi* with a clarificatory note about his pragmaticism:

> This, I beg to point out, is a very different position from that of Mr. Schiller and the pragmatists of today. I trust I shall be believed when I say that it is only a desire to avoid being misunderstood in consequence of my relations with pragmatism, and by no means as arrogating any superior immunity from error which I have too good reason to know that I do not enjoy, that leads me to express my personal sentiments about their tenets.[115]

The preoccupations associated with "Catholic Modernism" in France, Britain and Italy attracted very little interests among American Catholics. Philosophical concern with the subject and the postulates of historico-biblical criticism did not rank high in the American agenda. The liberal clergy of

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pp. 324f. and A. SANTUCCI, *Empirismo, Pragmatismo, Filosofia Italiana*, pp. 105-140.

[114] Scholars believed that Le Roy, a member of the philosophy of action school continued to use the term "pragmatisme" until *Pascendi*.

[115] C. S. PEIRCE, *CP* 6.485, 1908.

Americanism were more likely to concentrate on problems in social, political, and pastoral realms.[116]

With regards to Modernism the way Americans understand it, Peirce offered some answers. Peirce was a modernist in recognizing that there is no turning back to older school although he loved to relish ideas just like how he admired medieval Catholicism which had once offered the world consensus based on reverence as well as reason. But unlike the modernist intellectuals who saw doubt as debilitating, Peirce saw it as liberating. Where the modernist assumed that the authority of truth had been doubted out of existence, Peirce offers a new method of thinking wherein authority and truth could be reestablished. The possibility that old ideas could be displaced by the mind's probing curiosity encouraged Peirce to see in the falsifiability of ideas and the evidence of science's progressive character. Peirce believes that there is no way to establish truth on infallible foundations. All knowledge is conditional and based on learned inferences rather than immediate intuitions, and scientists in particular question everything— intuitions, perceptions, as well as sense

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[116] There were few isolated cases of American Catholics involved in the Modernist controversy: The case of Paulist William Sullivan, although he knew the European Modernist, left the Church in 1909 to become a Unitarian minister due to his disappointed hopes of a church that championed freedom and progress, fashioned itself in the mold of the American democratic experience; there was also the case of John Slattery, former superior-general of the Josephites who left the church in 1906 and worked closely with French Modernist Albert Houtin.

data, because their method is not foundational but corrigible. Science is a self-validating inquiry, a reason why civilization progress and do not decline.[117]

To the modernist recognition that value conflicts may have no resolution and truth no foundations, Peirce rejected this view and tried to develop ways of thinking to overcome all dualisms that left modern man estranged from God and nature. He challenged modernism to assimilate the achievement of science without losing the spiritual meaning of life. Peirce believed that philosophy could elevate science to the level of a religious commitment so that the modern intellect, no less than that of the Scholastics of the Middle Ages, would "put into rational light the faith of which they were already possessed" (*CP* 7.56, c. 1902). Combining scientific vocation with religious aspiration,, Peirce believed that philosophers will learn to love Truth and scientists to continue to aim at acquiring knowledge of the Truth.

4.5. A New Approach: Vatican Council II and Pope John Paul II

The Pastoral Constitution, *Gaudium et spes,* of the Vatican Council II asserts the impossibility of a serious conflict between science and faith, an idea previously affirmed by

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[117] Cf. J. HIGGINS, *The Promise of Pragmatism: Modernism and the Crisis of Knowledge and Authority*, pp. 158-204.

Vatican Council I in its dogmatic constitution *Dei filius*[118] and recognizes the autonomy of science and freedom in undertaking scientific investigation:

> There seems to be some apprehension today that a close association between human activity and religion will endanger the autonomy of man, of organizations and of science. If by the autonomy of earthly affairs is meant the gradual discovery, exploitation, and ordering of laws and values of matter and society, then the demand for autonomy is perfectly in order: it is at once the claim of modern man and the desire of the creator. (...) methodical research in all branches of knowledge, provided it is carried out in a truly scientific manner and does not override moral laws, can never conflict with the faith, because the things of the world and the things of faith derive from the same God. The humble and persevering investigator of the secrets of nature is being led, as it were, by the hand of God in spite of himself for it is God, the conserver of all things, who made them what they are. (...)[119]

Pope John Paul II, after referring to the above mentioned documents, said to the German investigators, "No science that is supported by rational principles and undertaken with

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[118] An extensive study about the antithesis —freedom of science-authority of faith— of the dogmatic constitution may be found in J. GOMEZ-HERAS, "Iusta Scientiae Libertas," *Scripta Theologica*, 2 (1970): 61-118.

[119] VATICAN COUNCIL II, Past. Const. *Gaudium et spes*, 36 in *AAS* 58 (1966): 1025-1120.

scientific procedure can enter in conflict with the truth of faith. This can only happen if the existing diversity in the two order of knowledge is not taking into account."[120] To Peirce, reason is to science as faith is to religion. Genuine religion is a vital matter, because it has to do with how we live and act. Religion has more to do with the heart. "In regard to greatest affairs in life, the wise man follows his heart and does not trust his head."[121] On the other hand, in pure science, reason directs the inquiry into the truth of the universe. In such science all propositions are mere opinions, they are hypotheses about the way things are, independent of the investigator. Any hypothesis an investigator puts forth is entirely subjected to revision. The scientific man is impregnated by the "scientific spirit that requires a man to be always ready to dump his whole cart-load of beliefs, the moment experience is against them."[122]

Pope John Paul II continued:

> Science by itself cannot give an answer to the problem of the significance of things; this does not enter into the confines of scientific process. However, that answer does not admit an

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[120] JOHN PAUL II, "Rinnovato Collegamento Tra Pensiero Scientifico e Forza di Fede Dell'Oumo che Cerca la Verità," a speech before Scientists and Students in the Cologne Cathedral (15-XI-1980), *IGPII*, 3-2, (1980): 1203.

[121] C. S. PEIRCE, *CP* 1.653, 1898.

[122] C. S. PEIRCE, *CP* 1.55, c. 1896.

unlimited delay. If the widespread confidence in the science remains frustrated, then there easily emerges a hostile attitude toward the said science. The vacuum left is invaded immediately by certain ideologies. They sometimes adopt an attitude without any «scientific» doubt; but their force of conviction is based in the pressing need of a response to the problem of the significance of the things and in the interest for a social or political transformation. The functionalistic science that does not take into account the values and that is strange to the truth can enter into the service of such ideologies; a reason that it is only instrumental faces the danger of being enslaved. Finally, in close connection with this cultural orientation crisis there is also the reappearance of new superstitions, of sects or of the so called «new religions».

These deviations can be anticipated and avoided from the viewpoint of faith. Now, this common crisis equally affects the «believing» scientist. He has to ask himself of the spirit and orientation in which he develops his science. He has to propose, directly or indirectly, the task of revising continually the method and the purpose of the science under the aspect of the relative problem of the meaning of things (...).[123]

According to my view, what Peirce meant when he talked of his contrite fallibilism was along that line of thought: to submit one's methods, findings and purpose for ratification. Peirce possessed a real love for truth and as a fallibilist, he

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[123] JOHN PAUL II, "Rinnovato Collegamento Tra Pensiero Scientifico e Forza di Fede Dell'Oumo che Cerca la Verità," *IGPII*, 3-2(1980): 1205.

acknowledged that he does not know satisfactorily about the thing, that he has no absolute certainty in knowledge. "Humanum est errare" (*CP* 1.9), he once quoted the popular adage in 1897; but to rectify is to advance in the search for the quest of the meaning of things which to him also is growth. "Out of a contrite fallibilism, combined with high faith in the reality of knowledge, and an intense desire to find things out, all my philosophy has always seemed to grow (...)."[124]

The words of Pope John Paul II on the Petrine ministry could have erased all his animosity to the holy Father:

> " (...) The *Petrine ministry* is also a *ministry of unity*, which is carried out in the field of ecumenism. Peter's task is to search constantly for ways that will help preserve unity. Therefore he must not create obstacles but must open up paths. Nor is this in any way at odds with the duty entrusted to him by Christ: 'strengthen your brothers in faith (cf. Lk 22:32). It is significant that Christ said these words precisely at the moment when Peter was about to deny him. It was as if the Master Himself wanted to tell Peter: 'Remember that you are weak, that you, too, need endless conversion. *You are able to strengthen others insofar as you are aware of your own weakness.* I entrust to you as your responsibility the truth, the great truth of God, meant for man's salvation, but this truth cannot be preached or put into practice except by loving.'

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[124] C. S. PEIRCE, *CP* 1.14, c. 1897.

Veritatem facere in caritate (to live in the truth of love; cf. Eph 4:15); this is what is always necessary."[125]

With regards to the relationship between religion and science, there is a growing critical openness in the Roman Catholic Church, criticized by the youthful Peirce for its imposing authority over the faithful. The Church, in seeking intellectual coherence and collaboration, open to discover values and experiences common in science and religion notwithstanding their diversities. A drive essentially towards the kind of unity which resists homogenization and relish diversity. The Pope said that "there has been a definite, though still fragile and provisional, movement towards a new and more nuanced interchange." Science and religion

> "begun to talk to one another on deeper levels than before, and with great openness towards one another's perspectives. We have begun to search together for a more thorough understanding of one another's discipline, with their competencies and limitations, and especially for areas of common ground. In doing so we have uncovered important questions which concern both of us, and which are vital to the larger community we both serve. It is crucial that this common search based on critical openness and

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[125] JOHN PAUL II, *Crossing the Threshold of Hope*, V. Messori (ed.), Jonathan Cape, London 1994, pp. 154f. Italics his.

> interchange should not only continue but also grow and deepen in its quality and scope."[126]

The Pope's concept on these two worlds could have been given a most welcome reception by Peirce, even if it would earn him the scorn of his puritan friends. The Pope encourages openness between the Church and the scientific communities. Openness Peirce always practiced, submitting always his findings for validation by other scientists. As dialogue and common searching continue, there will be growth towards mutual understanding and a gradual uncovering of common concerns which will provide the basis for further research and discussion. The Holy Father also warns that science and religion

> " (...) must overcome every regressive tendency to unilateral reductionism, to fear, and to self-imposed isolation. What is important, (...) is that dialogue should continue and grow in depth and scope. What is critically important is that each discipline should continue to enrich, nourish and challenge the other to be

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[126] JOHN PAUL II, "Our Knowledge of God and Nature: Physics, Philosophy and Theology," letter to the director of the Vatican Observatory on the occasion of the publication of results the Study Week organized by the Holy on the three hundredth anniversary of the publication of Sir Isaac Newton's *Philosophiae Naturalis Principia Mathematica*, (1 VI 1988), *IGPII*, 12-1 (1988): 1707.

more fully what it can be and to contribute to our vision of who we are and who we are becoming.[127]

In another occasion the Pope said:

> "Science and faith are gift from God. In this synthetic affirmation it is not only excluded that science and faith must look at each other with mutual distrust, but must indicate the profound motive that calls them to establish a constructive and cordial relation: God, common foundation of the two (...). In God, consequently, even in the diversity of their respective roads, science and faith find their principle of unity (...)."[128]

I think that this was precisely what Peirce had in mind. He recognized that the ways of science and the ways of religion were different. But he maintained that they proceed from the same and only one author— God, the unity he perceived in creation as the basis of his faith in Jesus Christ as the governor of the universes. During his time when the New England world was predominantly Protestant, these views

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[127] JOHN PAUL II, "Our Knowledge of God and Nature: Physics, Philosophy and Theology," *IGPII*, 12-1 (1988): 1711.

[128] JOHN PAUL II, "Scienza e Fede Sono Entrambe de Dio e in Lui Trovano il Loro Principio de Unità," a speech before the investigators of the Etorre Majorana Center, Erice, (8 V 1993), *IGPII*, 16-1 (1993): 1107-1114. See also "L'Armonia Profonda che Lega le Verità della Scienza e le Verità della Fede," an Allocution to the Pontifical Academy of Science on the occasion of the birth of Albert Einstein, (10 XI 1979), *IGPII*, 2-2(1979): 1107-1120.

were considered out of place and far so advanced. Add to it Peirce's audacity and outspokenness, traits which caused him social rejection, and earned him the label of religiously "unsafe man" by the fundamentalist Protestants who dominated the academic echelon.

The Pope makes it clear that the unity the Church is seeking is not identity. Unity always presupposes diversity and the integrity of its elements. The Church does not propose that science should become religion or religion science. On the contrary, each of these members should become not less itself but more itself in a dynamic interchange for a unity in which one of the elements is reduced to the other is destructive, false in its promises of harmony, and ruinous of the integrity of its components.

> " (...) both religion and science must preserve their autonomy and their distinctiveness. Religion is not founded on science nor is science an extension of religion. Each should possess its own principles, its patterns its procedures, its diversities of interpretation and its own conclusions. Christianity possesses the source of its justification within itself and does not expect science to constitute its primary apologetic. Science must bear witness to its own worth. While each can support the other as distinct dimensions of a common human culture, neither ought to assume that it forms a necessary premise for the other. (...)[129]

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[129] JOHN PAUL II, "Our Knowledge of God and Nature: Physics, Philosophy and Theology," *IGPII*, 12-1 (1988):1712f.

In similar tones, this is what Peirce was begging for almost a century before from the Church and the scientific community. Scientists cannot be aloof and indifferent about the scientific discoveries nor theologians be critical and overhasty on scientific results. For science, philosophy and theology are endeavors that carry with them the seal of limitation. The unity of Truth, objective of the sciences can only be shown in diversity; in a flexible and open systematization.[130] "Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes. Each can draw the other into a wider world, a world in which both can flourish."[131]

If Peirce were alive today, Pope John Paul II's words would have given him some form of consolation:

> (...) the Church does not advise prudence and caution, but valor and decision.
>
> There is no reason not to be on the side of the truth or to adopt before it an attitude of fear. The truth and all that is real constitute a great good, to which we should tend with love and happiness. *Science* is also a *road towards what is real*; since in it reason is developed, this reason given by God that, by its own nature, is

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[130] Cf. JOHN PAUL II, "Rinnovato Collegamento Tra Pensiero Scientifico e Forza di Fede Dell'Oumo che Cerca la Verità," *IGPII*, 3-2 (1980): 1202.

[131] JOHN PAUL II, "Our Knowledge of God and Nature: Physics, Philosophy and Theology," *IGPII*, 12-1 (1988):1716.

> determined, not toward error, but towards the truth of knowledge.(...)[132]

Then Pope John Paul II, in ending his speech, declares:

> (...) growth is only possible in the renewed union between scientific knowledge with the force of faith, that drives man towards the truth (...)
>
> To the scientist, to the students, and to all of you . . . I ask that in your quest for the scientific knowledge never lose the ultimate objective vision of your work and of all your life. For it I suggest specially two virtues: the virtue of valor, capable of protecting science in a hesitating world, separate from the truth and in need of meaning, and the virtue of humility with which we recognize the limitation of reason before a Truth that overflows it. (...)[133]

Peirce exercised these twin virtues of valor and humility all his life. A man of science that he was, he stood firm and defended his religious stance. "I am a Theist (...) not a pagan," Peirce told once expressing these virtues, "and the true theist's God is a being whom we can only vaguely know; but His essence is reality (...). When we attempt to think of what

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[132] JOHN PAUL II, "Rinnovato Collegamento Tra Pensiero Scientifico e Forza di Fede Dell'Oumo che Cerca la Verità," *IGPII*, 3-2 (1980): 1205f.

[133] JOHN PAUL II, "Rinnovato Collegamento Tra Pensiero Scientifico e Forza di Fede Dell'Oumo che Cerca la Verità," *IGPII*, 3-2 (1980): 1210.

He is, we fall into contradictions because *He is above human comprehension*. Nevertheless we can somewhat approach a comprehension. That is the God we all love and adore, and this loving is the best proof of his Being (...)."[134] Peirce's conception about faith in God is a 'way of life.' A way of life which he put as "simply love" following the New Commandment of Jesus Christ: "Love God and love your neighbor; on these two commandments hang the law, and the Prophets. This is the saving faith (...)," Peirce affirms, "this what Jesus Christ taught; and to believe in Christ is to believe in what he taught. The belief in the law of love is the Christian faith."[135]

According to my personal view, I think something along this line can be read in Peirce: A faith that frequently requires the poverty and humility of not knowing the answers, of being uncertain, of seeing it vaguely, of allowing experience to teach as about, the limitless of God's love:

> I pray thee, O Father, to help me to regard my innate ideas as objectively as valid. I would like to live as purely in accordance with thy laws as inert matter does with nature's. May I, at last, have no thoughts but thine, no will but thine. Grant me, O God, health, valor, and strength. Forgive the misuse, I pray of thy former

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[134] Cf. R. B. PERRY, *Thought and Character of William James*, vol. 2, Little, Brown and Co., Boston 1935, pp. 433-435.

[135] C. S. PEIRCE, *CP* 6.440-441. It seems that Peirce is paraphrasing here Mt 22:38-40.

> good gifts, as I do the ingratitude of my friends. Pity my weakness and deliver me, O Lord; deliver me and support me.[136]

It seems very attractive the re-discovery of Peirce as a philosopher for the 21st century[137] and a profound study of his religious thoughts can remove the prejudices he had suffered in life and after from the intellectuals of his country. Peirce was not a Roman Catholic, and he did not have a formal contact of with a Roman Catholic intellectual who would have explained to him with clarity the doctrines of the Church. Indeed, almost all of Peirce's comments on Religion deal with a generic Protestant Christianity. But as we have seen, the more he got into the Catholic doctrines, the more he understood the Catholic Church. A deeper study which has just been started may be of help for us to cross "the threshold of Hope."

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[136] C. S. PEIRCE, *W* 1.7, 1863.

[137] G. DEBROCK, "Peirce, a Philosopher for the 21st Century," *TCSPS* 28 (1992): 1-18.

CONCLUSIONS

1. Charles S. Peirce was born and grew up in a "scientific community." He did not only owe his formation to his family; the illustrious visitors who dropped by their house during his childhood days also became his intellectual resource for acquiring a scientific and analytic mind. Peirce was a man of science. He developed his prolific intellectual scientific activity in chemistry, astronomy, geodesy, metrology and spectroscopy. He was also a mathematician and a logician of great caliber, contributing significantly to the development of linear algebra, matrix theory and mathematical logic.

2. Although he described himself as growing up in the grips of science, from his earliest student days Peirce immersed himself deeply in philosophical projects both classical and contemporary, and saw them as connected with, rather than distinct from, his life as an experimental scientist. His consuming interest for the theory of categories and the grounding thereof in formal logic, convinced him that

philosophy needs a new set of categories if it were to comprehend reality as revealed by science. He did not intend to eliminate the idea of a real world; rather he endeavored to interpret it through categories appropriate to human thought and action. This was his involvement in the late nineteenth-century pursuit to 'scientize' philosophy; nonetheless, he was reluctant to univocally scientistic and positivistic approaches.

3. Peirce aimed to free philosophy from its metaphysical excesses, a pursuit to make philosophy more scientific. His naturalist classification of the sciences was also logical in such a way that the endeavor has been to arrange the scheme that each science ought to make appeal for its general principles, exclusively to the sciences placed above it, while for instances and special facts it will find the sciences below it more serviceable.

4. Science to Peirce is a mode of life; it is a lifelong struggle, a continuous search for a particular goal, being revised and corrected from time to time, compared to the findings of others, when new discoveries are found. Science as a mode of life has a socio-historical frame since human life is a socio-historical phenomenon. It is a quest, not of a sole man but of a community of inquirers, it is a collective and not an individual effort. Science is always linked to a community of inquirers extended over time with a unity of purpose and method which enables the product to be much more than the sum of the individual contributors.

5. Peirce conceives science as the search for truth. Different sciences may pursue different kinds of truth, so a scientific truth is relative to its scientific discipline. It also is

fallibilistic; the achievements and findings of the former scientists may have been may have been improved in our present times, for scientific truth is relative and not absolute. For Peirce, one's failure can ultimately be as important as one's successes: dwarfs aloft the shoulders of giants.

6. Although credit is given nowadays to Peirce as the precursor of pragmatism, the pragmatism that the world has known was not the pragmatism he conceived of. Peirce defined pragmatism as purely a theory of meaning and not of truth, a maxim, rule and method for ascertaining the meanings of signs. But pragmatism is not concerned with the meaning of all signs; it is concerned merely with the laying down of a method of determining meanings, not of all ideas, but of intellectual concepts, of those upon which reasoning may turn. Peirce repeatedly emphasized that pragmatism was not a philosophy of action, nor one in which meaning is married to action, the one developed by William James and others. His attempts to disassociate his view from such misunderstandings eventually led him to rebaptize his own position as "pragmaticism."

7. Peirce was not only a man of science, he, too was a man with deep religious convictions and remained so until the very end of his days. Contrary to the affirmations of some scholars who opine that Peirce's religious ruminations during the last twenty years of his life were eccentric musings of a mind in decline, religious issues were already part in Peirce's thoughts even during his early years. Peirce did not write a Treatise on Religion, except for the "Neglected Argument for the Reality of God," which he called a "sort of table of contents" and a "poor sketch" of his philosophy of religion, so one has to find

the sporadic and brief remarks in all his writings, a no easy task at all. For Peirce, scientific, logical and mathematical considerations played an essential role in shaping his views of God, religion, creation, immortality, freedom, prayer and community.

8. In all his years of philosophizing, Peirce never set aside his religious beliefs and leanings. Born in the century of profound and radical changes in the intellectual society of America, he was raised as a Unitarian, in New England Protestantism of the puritan stock. Peirce grew up in the midst of America's naturalist theism, who affirms a belief in God, who created the world as a system of mechanical order, who imposed on it natural laws leaving the system to function without his intervention; and that man forms as essential element in this mechanical system. He also witnessed the Transcendental movement's quest for a new world and a new harmony between man and nature to attain the utopian ideals of a modern society. Contrary to these predominant trends in America, he converted to Episcopalianism to become a Trinitarian.

9. Theology to Peirce has negative connotations, representing the sort of vicious narrow-minded, and politically-charged discourse that was all too typical of the theological debates between Unitarians and Calvinists of his childhood days. It was hardly a genuine form of inquiry to Peirce; it was simply a set of strategies designed to reinforce beliefs already assumed to be true at the outset. This form of theologizing was frequently found in his days.

10. On the issue whether Peirce was a pantheist, it is surely safe to conclude that he was not. He differentiated his theism from deism and pantheism as one who affirms God as the creator of the world (not the mechanicist's world of course), and who remains active and present in creation but not identical in being with it. Peirce professed a belief in God as creator of the universes, a belief incompatible with the pantheistic notion that the world and God are identical. Pantheism to Peirce is essentially unchristian, a denial of God's personality. Certain scholars have hold that Peirce was a panentheist for attributing to God purpose and therefore growth. But in my view the panentheistic god of Hartshorne like the finite god of James, does not fit with Peirce's conception of God.

11. Peirce also maintained a reasonable balance of God's immanence and transcendence. God is not completely identified with natural processes, much less with the sum of all items in the universes. To some extent, the divine is the tendency manifested in natural processes, of growth toward reasonableness. God's creative activity is seen as thoroughly immanent, operating by means of chance, and through natural growth. But God also transcends the world, just as truth transcends the search for it, and as an ideal perfection escapes the endeavor for it. The Absolute in Peirce expresses his view that God is beyond the merely actual, although not incognizable, neither is He fully known. In religious terms God is describable as loving and adorable Creator and Governor of the Universe, but understandable in philosophy as *summum bonum* both beyond and emerging within the world. Peirce affirms that God may never be fully captured

within the bounds of human explanations, but God does not belong to some domain of incognizable noumena.

12. Peirce's exposition on the reality (not existence) of God has two important contribution to philosophical theology. His emphasis lies on the fact that human beings have access to God's reality in ways other than conceptualization and ratiocination. He recognizes that all traditional proofs for God contribute something important to the issue, for in the case of the ontological argument, either God exists necessarily or else the very notion of God is self contradictory and incoherent; in the case of the cosmological argument, the experience of the world shows God's existence to be neither self-contradictory nor incoherent.

13. Religion to Peirce is a topic of vital importance and so a matter more of the heart than of the head. From musement or free contemplation, he proved that religious belief is instinctive; that it is a matter of sentiment, of the heart rather than the head. Human beings can perceive God by musement, but religion is not only sentiment as James affirmed. Religious experience also counts. It was also Peirce who stimulated the pragmatic movement to recover experience from the narrow and arid concept of certain forms of empiricism. For Peirce, experience is so rich that it is the only source of whatever man knows— including God, hence some form of religious experience is necessary although not sufficient for any rational belief in God. Peirce did reason about God.

14. Peirce sought a proper reconciliation of science and religion. He rejected the denial of religious sentiment in the name of the mechanicistic philosophy being proclaimed then

by the advocates of "positivism." But perhaps for those Christian views, he was branded as "unorthodox" and "unsafe" man during his time. "Science," to Peirce, is a living and growing body of truth, a certain forward-looking spirit determined not to rest satisfied with existing opinions, but to press on to the real truth of nature. "Religion" in the individual, is a sort of sentiment, or an obscure perception, a deep recognition of something beyond his comprehension. A perception which cannot reside solely in the individual for like every species of reality, it is essentially a social, a public affair. Therefore a church is needed. It is the idea of the whole church, welding all its members together in one organic systemic perception of the Glory of the Highest.

15. Religion is not a mere belief, however. To Peirce, it is a way of life. In so far as the essence of Christian faith can be expressed, it is Love: love of God and love of neighbor. Religion does not originate from science but from the religious sensibility which must be cultivated actively with a scientific spirit of openness to new knowledge of nature. Peirce, a scientifically-minded Christian, retained the essence of religion but relinquished religious timidity, since he was confident that the Truth is One and therefore, new knowledge can only alter the expression of faith, but not the deep mystery that it expresses.

16. These Christian views of Peirce never received serious considerations among Catholic scholars due to the supposed links of Pragmatism with Americanism and the Modernist movement. With regards to the former, pragmatism was just "sprouting from its pupa skin" to be seriously involved. Nor the main proponents of the pragmatic movement had any

contact with the protagonists of the controversy. With regards to the latter, the proponents of pragmatism were involved in it. But it has been seen, Peirce made every effort as early as 1903 until his death to clarify that his position was different from what the world has known as pragmatism. Although credit is given to him for originating it, he had to abandon it and renamed his maxim as pragmaticism. He was scarcely aware of the American pragmatism's involvement with the European Modernist movement. It could also be that he was aware of the condemnation made by the Roman Catholic Church on Modernism for he ended his "A Neglected Argument for the Reality of God" published almost a year after *Pascendi* with a clarificatory note about his relation to pragmatism, and even added with modesty his contrite-fallibilism.

17. Peirce had some misgivings with the Roman Catholic Church owing perhaps to the cultural anti-Roman bias in which he was raised. Peirce was not a Roman Catholic, and he did not have a formal contact of with any Roman Catholic intellectual who would have explained to him with clarity the doctrines of the Church. Almost all of Peirce's comments on religion deal with a generic Protestant Christianity. We could only conjecture however, that had he more chances to know the Catholic doctrines, the more would have he understood the Catholic Church.

18. Charles S. Peirce was a man of science. He tried to understand the world and humanity's place in it from the prism of the best scientific information available. More than that, as a man with profound religious convictions, his scientific investigations have religious underpinnings and are

reflections of a mind in deep search for Truth and a heart open to the Beyond. I hope that this work of investigation will stir up interest in Peirce's religious thoughts in such a way as to clarify further what Peirce himself held. May this remove the prejudices he had suffered in life and thereafter from the intellectuals of his country. A more extensive study of this man, his thoughts and convictions might provide us a deeper understanding of that Ideal whose living power bears upon human conduct. The way in which God is described, the attributes by which we characterized Him, must show Him, to be intimately involved in human life.

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