

## Charles Peirce's First Visit to Europe, 1870-71: Scientific Cooperation and Artistic Creativity

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Charles S. Peirce has been commonly identified as the most original and versatile intellect that America has ever produced (Weiss, 1934: 403; Fisch 1981a: 17, etc.). He was not only a philosopher, but a true polymath. His reflections cover very different fields. In Peirce's thought a rich knowledge of the philosophical tradition and of the history of science is melted with his valuable personal experience as a logician and as an experimental researcher. His deep involvement in science for decades provided him a real acquaintance with scientific practice that enabled him to develop a theoretical understanding of scientific creativity and of the real logic of discovery. Nevertheless, Peirce was not foreign to the artistic dimension of creativity. Art fascinated him throughout all his life, in spite that in his work the theoretical approach to art is merely a sketch. It is useful to keep in mind that one of his first philosophical readings in his youth was Friedrich Schiller's *Aesthetische Briefe*. As Peirce writes in 1905: "As for esthetics, although the first year of my study of philosophy was devoted to this branch exclusively, yet I have since then so completely neglected it that I do not feel entitled to have any confident opinions about it" (CP 5.129, 1905).

Both elements –real interest in science and personal connection with art– appear already in the early stages of Peirce's thought and are in some sense a mirror of his vital experience. The project on "Peirce's European Correspondence: Artistic Creativity and Scientific Cooperation", developed by the [Grupo de Estudios Peirceanos](#)<sup>2</sup> during the years 2007-09 and funded by the Plan of Research of the University of Navarra (PIUNA), has tried precisely to show this with some detail. The main goal of our project is to pay attention to the *European* letters of Peirce, that is, to the letters that Peirce wrote in his five sojourns through Europe since June of 1870 until September of 1883, and also to the correspondence that he maintained during all his life with a good number of European scientists and intellectuals of his time. We are firmly convinced that a careful attention to all these letters, –until now not easily accessible–, may change the common image of Charles S. Peirce as an isolated thinker, locked in his house in Milford, PA. A clear understanding of his "cosmopolitan

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<sup>2</sup> Taking advantage of the on-line nature of this journal, we have introduced in the texts a lot of links to the more illustrative pages of our project. Most of the links go to pages in Spanish according to the target of our Group. We hope that in the future some of the more valuable documents may be translated to other European languages by a European Peirce Network.

period" – in Max Fisch's expression (1986: 227) – might show that Peirce was in several senses a *European* scientist and philosopher and a real expert in art more than expected.

In the present project, that is aimed to be continued in the forthcoming years, the research has been limited to the study of the 17 surviving letters of Peirce's first trip through Europe (June 1870- March 1871), and to eight of his European correspondents: Mario Calderoni, Augustus De Morgan, Hermann Helmholtz, Stanley Jevons, Edward H. Palmer, Ventura Reyes y Prósper, Victoria Lady Welby and Wilhelm Wundt.

This article is aimed to provide an account of the research developed until now and its main results. We will start describing the initial plan and the context in which the research was framed. Secondly, several historical and biographical data of Peirce's first visit to Europe will be presented: this is the heart of our project. Thirdly, the results will be analyzed according to our main points of interest: 1) results relative to Peirce's conception of science and of scientific community; 2) aspects related with artistic creativity that the correspondence studied has brought into light and, 3) a brief summary of the results of the correspondence with the European scientists. Finally, the paper is concluded with a general summary of the achievements of the project.

## 1. DESCRIPTION OF THE PROJECT: PLAN OF WORK

Since several years ago, our [Group of Peirce Studies](#) was cherishing the idea of making as a team some original contribution to the study of the figure and thought of Charles S. Peirce that could be received by the international community as something novel in the field of Peirce studies. Until now our main contribution – besides the good number of [doctoral dissertations](#) about C. S. Peirce and other pragmatists – had been focused in the [translations of Peirce's](#) texts into Spanish and the reception of Peirce in the Hispanic world (Nubiola & Zalamea 2006). The extensive work for years in this area has provided a wide visibility to our Group, particularly in the Spanish-speaking countries.

The abundant correspondence of Charles Peirce, kept (at least partially) in the [Houghton Library](#) at Harvard University and registered in the [Robin's catalogue](#), seemed to us an element of Peirce's immense written production that had been neglected by most of scholars. This was due to the difficult access to those letters only available at the Houghton Library, the [Institute for Studies in Pragmaticism](#) in Lubbock, Texas, and the [Peirce Edition Project](#) in Indianapolis. Amongst the thousands of letters, we were particularly interested in the ones that we call "the European letters", that is, the letters that Peirce wrote during his sojourns through Europe and the correspondence that he hold with the European scientists and intellectuals throughout all his life. The letters written from abroad provide a very valuable approach to Peirce's complex personality, his aesthetics opinions, his artistic evaluations and also his worries and anxieties; all of these complemented pretty well the philosophical standard approach to Peirce developed by most of scholars who simply had no access to those letters. In particular, we were deeply attracted by the letters that Peirce wrote to his wife Zina and to other members of his family during his first trip of 1870-71. The set of [these letters](#) may be read as a delightful chronicle of the adventures of a young American of thirty years through very different European countries: England, Germany, Austria, Turkey, Greece, Italy, Spain, France, Switzerland.

Our research was focused in creativity and scientific cooperation. We have been particularly interested in the aesthetic evaluations that Peirce expresses in his letters and also in his effective collaboration with some of the most well-known European scientists of his time. In a wider framework, our project is aimed to be the germ of a

more effective cooperation between scholars of different countries, and also as an impulse to develop the research on Peirce in a European scale.

In the first phase of the project our attention was centered in Peirce's 17 surviving letters of his first trip through Europe. The letters were written by hand, including also [skillful drawings](#). They were not intended to be typed or printed, but to be read in the original handwriting, in the *manuscript*. For this reason, we decided to present in the [webpage of the project](#) the images available of those letters taken from the reels of microfilms bought from Harvard Photographic Service (which do not include the family correspondence) or from the photocopies available in the Peirce Edition Project<sup>3</sup>. Peirce's handwriting is very telling, it is usually very clear, and it provides –at least it seems to us– a peculiar feeling of his personality, deeper, of course, than what typed transcriptions could offer.

In detail, the project –developed since December 2007 until August 2009– has included the following tasks:

a) A careful transcription of the original text of the 17 letters in English, but without noticing deletions, corrections, misspellings, etc., since the reader has an image of the real text at sight. (We have been fortunate of being able to use Max Fisch's transcriptions of most of the letters, available at the Peirce Edition Project).

b) A faithful translation into Spanish of each text with frequent annotations in which the sense of obscure passages is (most of times) given. These notes provide complementary information that enriches substantially the reading of Peirce's letters.

c) The installation of the translations of the letters in the web of the project has been completed with a good number of links –in the text of the letters and also in the notes– to illustrations, photographs, sources, etc. These links bring the reader to other pages of our web or to external resources available in internet.

Our general project is aimed to provide a global description of Peirce's European trips (in the first phase, only the first trip of 1870-71), enhancing what Peirce learned from Europe and how these trips changed his mind, particularly about creativity and scientific cooperation. But at the same time, we want to show how internet might be used –with great advantages over traditional printed volumes– in order to publish this type of handwritten documents, making them available to a wider community of scholars, which in its turn might improve a lot the transcriptions, translations and annotations of the texts transforming the web in a real collaboratory.

In the year 2006 our project was presented to the Government of Navarre, and was positively evaluated, but at last was not funded by budget difficulties. Fortunately, the Plan of Research of the University of Navarra approved the required funding for the first phase<sup>4</sup>.

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<sup>3</sup> Without the generous help of the Peirce Edition Project our project could not have been done. We are extremely grateful to Nathan Houser and André de Tienne for all the extensive support they have provided us.

<sup>4</sup> In our *web* is possible to check our applications to the [Gobierno de Navarra](#) and to the [University of Navarra](#) where the antecedents, methodology and goals of the project are described in detail (in Spanish).

## II. C. S. PEIRCE'S FIRST VISIT TO EUROPE: GENERAL DESCRIPTION AND BIOGRAPHICAL DATA

Charles S. Peirce journeyed to Europe on five occasions throughout his life. The five trips took place between the years 1870 and 1883, all of them "in the service of the Coast and Geodetic Survey, at that time the chief scientific agency of the United States. Peirce was in the first place a scientist, and his career was in the service of that agency. The years of Peirce's five European sojourns were: (1) 1870-71; (2) 1875-76; (3) 1877; (4) 1880; and (5) 1883. The five sojourns together added up to nearly three of those thirteen years" (Fisch 1981b: 13). These trips made possible to Peirce to get in contact with European scientists and helped a lot to increase his international profile as a researcher. In 1875 Peirce took part in the meeting in Paris of the Special Committee on the Pendulum of the International Geodetic Association, and in 1877 was invited to the general conference of the Association held at Stuttgart. "Peirce attended the conference as accredited representative of the United States Coast and Geodetic Survey. That was the first formal representation of an American scientific agency in the sessions of an international scientific association" (Fisch 1981b: 15). In 1877, he was elected as a member of the National Academy of Sciences.

The first trip to Europe, which is at present the core of our project, extended from the 18<sup>th</sup> of June of 1870 until the 7<sup>th</sup> of March of 1871, almost nine months. When leaving, Peirce was a young man of thirty years, with "high hopes" as he writes to his mother in his brief [goodbye letter](#) from Sandy Hook, New York, on the 18<sup>th</sup> of June. Although young, he had been working as a scientist since 1861 and had made some successful achievements in his career. After finishing his studies in the Lawrence Scientific School at Harvard, he had started to work as an aide to his father, [Benjamin](#), in the U. S. Coast Survey; he had taught two series of lectures on the logic of science (the Harvard Lectures of 1865 and the Lowell Lectures of 1866) and another on the British logicians (Harvard, 1869), he had been elected member of the American Academy of Arts and Sciences (1867) and in 1869 he had been appointed as an assistant at Harvard Observatory.

The main goal of Peirce's first trip to Europe was to identify possible locations suitable for establishing observatories in order to study the [total solar eclipse](#), which was to take place at midday on 22 December 1870 over the Mediterranean Sea. Also his father Benjamin Peirce wanted to introduce his son to several European scientists. Peirce sailed for London, in company of his brother Jem, on the 18<sup>th</sup> of June in the steamer [S.S. Deutschland](#). The brothers separated in London, while Charles continued his trip through the continent. In the fall, Charles would join with his father, Benjamin, his wife [Zina](#) and the rest of the team of observers in charge of the solar eclipse.

In 1869 Charles S. Peirce had been a [member of one of the teams in Kentucky](#) studying the total [eclipse of the sun](#) on August 7<sup>th</sup>. The observation of the solar corona and its protuberances through telescopes, and the detection of helium by use of the spectroscope, led the American astronomers to formulate new theories on the composition of the sun that were received with a certain skepticism by European astronomers. The eclipse of 1870 was the perfect opportunity to proof those theories. It seems that this eclipse caused a deep impression to Peirce. Twenty five years later, in 1894, he writes: "Of all the phenomena of nature, a total solar eclipse is incomparably the most sublime. The greatest ocean storm is as nothing to it; and as for an annular eclipse, however close it may come to totality, it approaches a complete eclipse not half so near as a hurdy-gurdy a cathedral organ. Few people who do not make journeys on purpose ever see a total eclipse" (CN 2.59, 1894).

The itinerary of Charles Peirce's trip included [London](#), [Berlin](#), [Dresden](#), [Prague](#), [Vienna](#), [Pest](#), the Danube, Varna, the Black Sea, until Constantinople. From Constantinople Peirce went back along the [path of totality](#) of the eclipse from East to West in search of suitable locations. This part of the journey included Turkey, Greece, Italy, and Spain looking for the better places for the observations in order to secure the success of the scientific expedition, commanded by his father Benjamin. In Berlin, he visited [Amy Fay](#), his sister-in-law, who accompanied him in a delightful visit to Dresden. In Vienna he was kindly attended by Edmund Weiss and Karl L. Littrow, director of the Observatory, and in Constantinople he enjoyed the guide of the British orientalist [Edward H. Palmer](#) and his friend [Charles Drake](#). Peirce travelled through a Europe involved since July of 1870 in the Franco-Prussian War and finally he joined the team that observed the eclipse in the [vicinity of Catania](#).

This journey was a real important experience for the young Charles Peirce, who was visiting Europe for first time. His letters are full of the impressions that the different places caused upon him. It might be said, for instance, that he liked London, but not Berlin, of whose terribly bad smells he complains in several letters (letters of 30<sup>th</sup> June, 11<sup>th</sup> August and 4<sup>th</sup> of September). Pest seems him "a rather pleasant place to stay" (letter of 25<sup>th</sup> of August) and Constantinople is "by all odds the most beautiful & fascinating place I have been in yet" (letter of 2<sup>nd</sup> of September). Greece seems to him captivating, but "on the whole I don't think Thessaly is very nice" (letter of 15<sup>th</sup> of September). From Chambéry, Savoy, Peirce writes to his mother enumerating the eighteen totally distinct languages that he has heard along his journey. On other occasion he is amazed with the big number of languages in which the newspapers of Constantinople are published (letter of the 2<sup>nd</sup> of September) or with the many languages spoken by a lady he met in the train (28<sup>th</sup> of August), at the same time that he complains of not being able of speaking fluidly at least French (letter of 28<sup>th</sup> of August).

The letters show also the human side of Peirce, worried about the risks of being stolen or getting ill, subject to his mood and sentiments. In the letters the traveler and cosmopolitan Peirce fills pages and pages with comments about the climate and weather, dirtiness of cities and places to stay, wines and food, prizes and bargaining, clothes, means of transportation, and, in sum, about the customs and curiosities of the several places which he is visiting. We feel in his letters the better days and the days in which he feels himself deeply homesick. "I begin now to feel the shortness of my time acutely at the same time that I am often quite homesick & long to be home", Peirce writes on the 15<sup>th</sup> of September from Messina, Sicily. A few days before, on the 2<sup>nd</sup> of September, he writes to his mother: "Considering how much pleasure I have had, I ought to be willing to put up with a fortnight pain". In a letter on the 16<sup>th</sup> of November, he writes to his mother: "This traveling about alone is good to teach a man the gift of silence. You won't find me such a rattle pate when I return".

In short, Peirce is facing in his journey a real new experience in a world entirely different to what he has been used to. As he writes to his wife from Constantinople on the 28<sup>th</sup> of August de 1870: "If you could see what another world this is, you would wonder".

### III. RESULTS OF THE PROJECT

### 3.1 The notion of science and of scientific community

From a scientific point of view the expedition of the U. S. Coast Survey in which Charles Peirce took part was a real success. It was very useful to support the observations done the previous year in the solar eclipse in Kentucky, in the sense that the effects observed in the solar corona and the protuberances confirmed the new theories of the American astronomers. "On the whole, the American observations and inferences of the preceding year were vindicated. This was Peirce's first experience of large-scale international scientific cooperation" (Fisch 1981b: 14). The observation of the eclipse developed in combination by American and European astronomers of several countries was a genuine international experience. The "Reports of observations upon the total solar eclipse of December, 22, 1870" was included as Appendix n° 16 of the [Annual Report of the Superintendent](#) of the Coast Survey of 1870: It is really worthwhile reading, including particularly the excellent [report of Peirce's wife](#) and the [drawing](#) that she made.

During the years before his first European sojourn, Charles Peirce had developed, under the supervision of his father, an intense philosophical study, firstly on Kant and categories, and later on logic, particularly in the theories of the British logicians. Between 1868 and 1869, Peirce had written three of his most important texts corresponding to the "Cognition Series" published in the *Journal of Speculative Philosophy*: "[Questions Concerning Certain Faculties Claimed for Man](#)", "[Some Consequences of Four Incapacities](#)" and "[Grounds of Validity of the Laws of Logic](#)".

Peirce's lectures on British logicians before his trip to Europe make sense to his intention of getting in touch in London with some of the most relevant logicians of the time. We know that on the 11<sup>th</sup> of July he sent to [Augustus De Morgan](#) a letter of [introduction from his father](#), a copy of his father's paper, "[Linear Associative Algebra](#)" and a copy of his own article "Description of a Notation for the Logic of Relatives, Resulting from an Amplification of the Conceptions of Boole's Calculus of Logic", which has been considered as "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." (Merrill: 1984, *W* 2, xlii). Besides visiting De Morgan, who was gravely ill, Peirce presented another copy of his article to [Stanley Jevons](#). We know that Jevons wrote Peirce, since he answered back a letter from Pest on the [25<sup>th</sup> of August](#).

Both De Morgan and Jevons were main figures of the development of exact logic, and Peirce's paper came to be part of the discussion about Boole's *Laws of Thought* at the Liverpool meeting of the British Association for the Advancement of Science in September (Fisch: 1984, *W* 2, xxxiii). Peirce's paper was published in the [Memoirs of the American Academy of Arts and Sciences](#) (vol. 9, 1870, 317-378).

This first trip through Europe was for Peirce the right occasion to launch his prestige as a scientist and to get in contact with several scholars, particularly astronomers (Lockyer, Littrow, Plantamour, Weiss, etc.), but also of other fields as mathematics and logic (Clifford, De Morgan, Jevons, etc.) reaching to take an active part in the community of researchers that was so important for him in the search of truth. Although in the letters already studied (written most of them to his family), there are no references to his notion of science, they exhibit traces of his scientific activities during the trip: Peirce writes his father about the purchase of scientific instruments (letter of 12<sup>th</sup> of July), about the suitability of different places – for instance, Kavala in Greece – as observatories for the eclipse (letter 5<sup>th</sup> of September), his visit to the British Museum and his connection with De Morgan (letter of 12<sup>th</sup> of

July).

Although, after studying the letters of the following trips, it might be more complete to consider how his professional practice in Europe transformed Peirce's notion of science, it might be already said that his conception of science reflected intensely his active participation in the international scientific community. For Peirce, science was an activity strongly creative, aimed to discover truth, with two basic properties: its communitarian nature and its fallibility.

Perhaps, a good example of the communal nature of science might be found in his letter to Stanley Jevons on [the 25<sup>th</sup> of August](#), in which Peirce establishes an interesting dialogue with the British logician about his conception on logic, and offers him one of the earliest formulations of his well-known Peircean division of the signs in "icons", "indexes" and "symbols". In the last line of his letter Peirce says to Jevons: "I trust you will feel enough interest in this discussion to continue it."

In his later thought Peirce will write about the scientists as those whose lives are animated by the desire to find out the truth (*MS 615*, p. 14, 1908), by "an impulse to penetrate into the reason of things" (*CP 1.44*, c.1896); and the scientific method will be the only correct method to develop that search. For Peirce, science is a particular application of methodology that will enable to deal creatively with reality, constructing hypotheses that will help to know it. Which constitutes science "is not so much correct conclusions, as it is a correct method. But the method of science is itself a scientific result. It did not spring out of the brain of a beginner: it was a historic attainment and a scientific achievement" (*CP 6.428*, 1893). Instead of the popular image of science as something finished and a dead and rigid methodology, science is for Peirce "a living historic entity" (*CP 1.44*, c.1896), "a living and growing body of truth" (*CP 6.428*, 1893), something living that will make possible the continuous growing of thought towards the truth.

Peirce gets from his intense involvement in scientific practice his notion of science as a living activity continued throughout centuries by different persons of different ages. For Peirce there is only one community of research where all this process is developed, and this community to which he belongs is extended not only in the present, but also in the future. Already in 1868, Peirce had written:

The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you. Thus, the very origin of the conception of reality shows that this conception essentially involves the notion of a COMMUNITY, without definite limits, and capable of a definite increase of knowledge. And so those two series of cognition – the real and the unreal – consist of those which, at a time sufficiently future, the community will always continue to re-affirm; and of those which, under the same conditions, will ever after be denied. (*CP 5.311*, 1868).

The members of this community try to explain and make publicly accessible the results they have achieved, and also the method by which they have arrived to the opinions that they hold. The scientist has to take in consideration the opinions of the other members of the community, and in this way it is possible to progress in the search of truth with the hope that it might be attained, although after oneself as an individual. On 1901, Peirce writes:

The scientific world is like a colony of insects, in that the individual strives to produce that which he himself cannot hope to enjoy. One generation collects premises in order that a distant generation may discover what they mean.

When a problem comes before the scientific world, a hundred men immediately set all their energies to work upon it. One contributes this, another that. Another company, standing upon the shoulders of the first, strike a little higher, until at last the parapet is attained. " (CP 7.87, 1901).

This idea shows up perhaps in a comment, apparently casual, that Charles makes to his brother Jem in a letter written from Pest on the 25th of August of 1870, before going to the South. He is worried by the danger of getting ill with fever on some of the Mediterranean places that he is going to visit, since a bout of yellow fever had appeared several months before. He writes:

I think myself that to go into Greece is not entirely safe but I shall reduce my stay there to a minimum. I cannot well avoid going there & if as is not after all probable I get the fever why I shall not for my own sake care at all & I should be no great loss socially. You will have done what you could to keep me away, but it is quite absurd to be made unhappy by the regular & normal course of human events. If I should never come back I trust my friends will remember that the less they care for it the more they conform to my ideas.

Perhaps it is possible to find here an echo of his belief that truth is to be attained independently of the breakdown of the singular individuals, and about the relative value of individual life and personal achievements compared with the community as a whole. Peirce's ideas in that letter confirm his belief that science will progress towards its goal under the impulse of successive generations.

Men of science stimulate permanently one to each other, and at the end the result obtained with their work has to be open to the judgment of the others. The scientist needs the approval of the community. On this respect, Peirce writes in 1870, the same year in which he starts his first European trip, that community does not mean a majority: "Then by the truth concerning a thing we do not mean how any man is affected by a thing. Nor how a majority is affected. But how a man would be affected after sufficient experience, discussion, and reasoning." (W 2.440, 1870)<sup>5</sup>. The community, whose continuity makes possible experience, discussion and reasoning paves the way for the real advancement of science towards the truth.

A second quality deeply rooted in Peirce's conception of science from the early beginnings of his scientific activity is its fallibilism. It is important not to mistake "whatever I am clearly convinced of" with what is true (cf. CP 5.265, 1868). Fallibilism does not imply that there is no hope to get sound knowledge or that it is not possible to reach the truth in the long run. The methods of science are successful, although in the short term they produce errors and successes. We have to attempt always to get out of doubt (CP 7.109, c.1910), that a question "has one answer decidedly right, whatever people might think about it" (CP 2.135, c.1902), and that error has a positive effect towards the truth. Peirce writes: "The essence of truth lies in its resistance to being ignored." (CP 2.139, c.1902). Peirce's fallibilism does not close the doors to truth, but on the contrary it makes possible to progress towards it. Doubt, a living and real doubt, not a paper-doubt, and error turn themselves in the effective motor of the scientific research. The scientist – Peirce writes – "stands ready to abandon one or all [of his or her beliefs] as soon as experience opposes them." (CP 1.635, 1898)

We will end this section with a suggestive text that might serve as a summary of all what we have said until now about Peirce's conception of science and scientific community:

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<sup>5</sup> For context of this quotation, Murphey (1961: 142) and Barrera (2003: 260)

But if I am asked to what the wonderful success of modern science is due, I shall suggest that to gain the secret of that, it is necessary to consider science as living, and therefore not as knowledge already acquired but as the concrete life of the men who are working to find out the truth. Given a body of men devoting the sum of their energies to refuting their present errors, doing away with their present ignorance, and that not so much for themselves as for future generations, and all other requisites for the ascertainment of truth are insured by that one. (CP 7.50, n. d.).

### 3. 2 Aesthetics and artistic creativity

Although Peirce affirms not being well acquainted with aesthetics (CP 1.191, 1903), he always was interested in it. It is unclear why he did not write more on this field: perhaps due to the scientific atmosphere in which all his life turned out. In spite of the fact that Peirce did not develop widely the point, aesthetics is located in a very important place in all the architecture of his conception, when in the turn of the century he develops his idea of aesthetics as the foundation of the other normative sciences. Aesthetics as the first of normative sciences has for Peirce a special quality of firstness. "Aesthetics considers those things whose ends are to embody qualities of feeling" (CP 5.129, 1903). Its task is to determine which is the *summum bonum* that has to serve as an end to the other two normative sciences; to tell "what it is that is admirable without any reason for being admirable beyond its inherent character." (CP 1.612, 1903)

Thus, while for the scientist the main thing is thought and nothing seems great but reason, the artist has to be busy with his or her feelings. Men who create art, Peirce writes, are those "for whom the chief thing is the qualities of feelings", differing from the practical men, who carry on the business of the world, and the scientists (CP 1.43, c.1896).

For Peirce art is related with "qualities of feelings", with that which is or exists with independence of whatever other thing, without any element of being relative to, or of mediation (cf. CP 6.32, 1891). Beauty is for Peirce the only thing that we admire in itself and not in order to another thing. But, what beauty in concrete is? What works of art may be considered beautiful? The letters studied in this project provide an excellent source to get into Peirce's conception of beauty. The peculiar experiences that Peirce refers in them, his comments on the works of art that he sees in Europe and his personal way of contemplating them constitute excellent examples of that, and perhaps it is possible to find in them the germ of the conception of art that in later years Peirce would develop.

Peirce exhibits in a lot of his letters his admiration for beauty and he wants to pass on the feelings that his contemplation provokes him. That admiration, about the greatness of nature or about something done by the hands of men, is always for Peirce in the center of the artistic phenomenon. Some pictures, sculptures and buildings called powerfully his attention along his European sojourn. He admired, for instance, the Thiergarten in Berlin, that seems "enchanting" to him, Potsdam, Sans Souci, the mosque of Suleiman in Constantinople, a bust of Faustina in Catania "which I couldn't tire of looking at" (letter of 22nd of September), or the cathedral in Rome of Santa Maria Maggiore. "I was greatly struck by this church", Peirce writes to his mother (letter of 14th of October),

He is also marveled by the Bohemian mountains, the Hungarian hills, the Carpathian Mountains, the Danube – of which writes when sailing down towards the Black Sea that "I believe no river in the world is so fine as this part of the Danube." (letter of 28th of August)–, the Bosphorus. He admires the famous view of Constantinople when approaching it by sea, the views of Ossa and Pelion in Greece.

When Peirce explains why he has liked or disliked something, he recurs almost always to its capacity of conveying something. So, for instance, he affirms in a letter written in Berlin on the 30<sup>th</sup> of July of 1870 that the sculpture and architecture of the city do not produce any real effect in the visitor who contemplates them:

The architecture and sculpture have a very artificial and made up look, generally imitations of classic style and fail altogether of any real effect even when you must acknowledge them to be fine. The finest thing is the Victory over the Brandenburg Thor [*sic*] and that has the effect of a small bronze. The artist has taken no advantage at the large size to produce any particular effect of greatness or sublimity.

Also, referring to St. Peter's cathedral in Rome, Peirce writes that "there is an absence of true belief about St. Peter's. Its got up. (...) It is the enormous size & perfect proportions of St. Peter's that impresses one. Beyond that there is nothing great about it (letter of 14<sup>th</sup> of October). The same is true for literature. In a couple of letters Peirce affirms to be reading Balzac. On the 4<sup>th</sup> of September he writes that he has enjoyed himself with the reading of *Honorine* and expresses his admiration to Balzac's knowledge of human nature. In a letter on the 14<sup>th</sup> of October expresses again his admiration for this writer and praises Balzac's power of description, but says that he fails precisely in not being able "to interest the reader very much in any of his characters; it is all a mere study without sympathy". This inability to express that is used by Peirce as a key to distinguish good works of art from less good ones is also behind his comment about the pooriness of ideas of Muslim architectonic style compared with gothic style: "Saint Sophia is fine but the style of it is altogether below the Gothic & I thought the Saracenic a style of architecture rather poor in ideas." (letter of 4<sup>th</sup> September).

Curiously, Peirce is totally captivated by the expressive force of Antonio Canova's sculptures, as he writes in his [letter of the 16<sup>th</sup> of October](#) from Rome:

There are two monuments by Canova here. One of them very striking. I greatly admire Canova. My opinions on the subject of painting & sculpture I am generally hold very timidly but not this one. I think Canova great – very, very great. I was first struck – indeed quite overwhelmed – by his [Theseus Killing the Minataur](#) in Vienna. Then I was greatly pleased with his [Pauline Borghese](#) & now this monument of [Clement XIV](#) I think has great power.

At the same time, Peirce affirms that the sculptures of Michelangelo are "horrid and misproportioned":

I then went into the monastery adjacent to this church & saw a monument by Michael Angelo. But to appreciate Michael Angelo's statues requires more knowledge of the history of art than I have got. They seem to me horrid misshapen & misproportioned things.

In a letter to his mother from Chambéry one month later, on the 16<sup>th</sup> of November, Peirce makes also some meaningful comments about the absence of motive or belief in the art of his age, something that we understand as the absence of something to express to the audience:

Canova's statues & some few pieces of modern art make one feel that all this age needs in order quite to eclipse all others in art is the Motive –but that you see is totally wanting. Art is a mere plaything or luxury now. What are our artists! Are they the representative men of our age at all or do they even at all comprehend it? The difficulty is our age has no belief; it doesn't half believe in itself even. As long as that is so it yet asks for critics & scientific men & not artists.

In the line expressed already by these comments, years later after his journey, Peirce will affirm that art consists precisely in expressing something and in producing some effect in those who contemplate the work of art; in being able of representing a quality of feeling making it reasonable, in making actual those possibilities in which qualities consist as firsts. The true artist, the creator, is able to capture what is ungraspable and making it understandable; of grasping and expressing what in other case would remain hidden, without realization, as only a mere potentiality. In 1903, Peirce writes:

It seems to me that while in esthetic enjoyment we attend to the totality of Feeling –and especially to the total resultant Quality of Feeling presented in the work of art we are contemplating– yet it is a sort of *intellectual sympathy*, a sense that here is a Feeling that one can comprehend, a reasonable Feeling. I do not succeed in saying exactly *what* it is, but it is a consciousness belonging to the category of Representation, though representing something in the Category of Quality of Feeling. (CP 5.113, 1903; our italics)

For Peirce art has precisely this capacity of grasping or fixing these qualities of feeling and of exhibiting them for their contemplation. The artist takes as an experiential source the matter of the world, the sentiments, the impressions that his life, historical contexts or social occasions cause in him. He is able to express that in a peculiar way that calms the initial anxiety. For Peirce the artist is able in a surprising and almost magical way of grasping isolated and hidden qualities by its own nature and making them in some sense reasonable, understandable.

Far away of the trends that consider aesthetics as something completely opposed to the rational, according to Peirce, it is necessary to affirm that art is thirdness, that there is some reasonableness in art. According to this conception there are three elements combined to give rise an artistic phenomenon. On one side, firstness, the quality of feeling that the artist perceives without even being conscious of it; on the other side, the reaction to this firstness, which is expressed in writing, in painting or in another form giving rise to something that exists in the actual world, a work of art in a world of facts, with a trait of secondness; and finally, thirdness, which is representation, the capacity to grasp firstness, which is somehow ineffable, and turning it in something communicable by means of some phrases, of some lines, of some musical notes. The three categories are combined to give rise to the artistic phenomenon.

This capacity of grasping something first and expressing it is what, as Peirce acknowledges in his letters, he had been unable to do in front of a lot of work of arts that he saw in his European journey. In his trip, Peirce is surprised by a multitude of feelings, sensations, impressions that he wants not loose. As an interested traveler in what he see, moved by his desire of writing everything, affirms on the 28<sup>th</sup> of August: "I thought today I would rest & write letters. I have seen so much that unless I go over it in my mind it will escape me. I feel I have now forgotten ever so many things which interested me greatly".

Peirce's letters to his family seem sometimes more a journal than properly letters. In one of them, written while sailing towards Greece and addressed to his wife, he literally writes, "for the next few days I shall be able to keep a regular journal" (4<sup>th</sup> of September). Two days before, in a letter from Constantinople, he laments of not having time enough to describe all what happens in front of his eyes: "There is such a flood of complete novelty before my eyes everywhere that I have not time to get used to it at all even enough to describe it. What shall I begin with?".

Peirce feels a great desire of writing down the strong impressions that the journey is conveying upon him. Nevertheless, at the same time he is also conscious of how difficult is to give form to those impressions, to those firstnesses, that so difficult results him in occasions to put into words or even in drawings. "It is difficult to give a notion of the character of a country so unlike what you have seen", he writes to his wife from Syracuse on the 22<sup>nd</sup> of September. In the same letter he tries to describe the sunrise seen from the [Greek theater of Taormina](#) and he finally concludes that no art could express it:

But how can I give you any sort of notion of the enchanting, *enchanting* view? I was standing in a very lofty promontory in the pure undeceptive light of morning looking down upon the sea. Just below me, 50 feet or so, was this ancient theatre. In ruins but enough left to show readily how it used to be with its beautiful columns, circles & arches, quite enough to be very beautiful still. Enough to make you think the people who selected this enchanting site for it hadn't been gone so very long. I was not at the summit of the promontory, though very high. High above me was an awful rocky head, the ancient acropolis, crowned with a formidable looking fortress. For many miles along the shores stretched such hills as I had seen the day before with sunny valleys beneath them & the sea rolled in onto the beach. I could see many villages both in the valleys & on the hills –nearest of course the curious little town of Taormina & much verdure. Across the sea on one side the shores of Calabria were very prominent & in the opposite direction over the land rose Etna majestic & awful. It is to see such things as this that it is worthwhile to come abroad, things which no art can reproduce.

Peirce feels himself unable to express his feelings and his admiration, and in his letters he is amazed of his own incapacity to explain or reproducing that. For instance, in a letter of 28<sup>th</sup> of August he writes that he is seeing things that imagination is unable to draw or memory to retain, and referring himself to the bust of empress Faustina that he liked so much in Catania, he affirms: "Here was another thing not to be reproduced. Memory itself cannot do justice to this beautiful work" (22<sup>nd</sup> of September). In the same letter he adds that his drawings of a Venus, that he had liked and that in some sense surpassed Titian's Venus, were not able to express the essence of that work of art, and thus they were like "positive libels".

This European experience might be then in the origin of Peirce's idea about the artist as a person who is able to rationalize the non-expressable, to calm that anxiety, to express the admiration that something provokes in him. Peirce himself, years later, tried to do something on this vein writing a literary tale, the only text of fiction kept written by Peirce, in which he aspired to keep the impressions and feelings that he had experimented in his journey through Greece. This tale, *Topographical Sketches in Thessaly, with Fictional Embroideries*, may be considered as a practical experiment of Peirce's notion of art. Art makes that the variety of human experience, although diverse and ungraspable, is at least rationalizable, because art succeeds in colonizing and expressing feelings embodying them in thirdness. Beauty is given when harmony,

equilibrium, a perfect adjustment between the expression of firstness and reason are achieved, when a "reasonable embodiment" is achieved. Thus, a beautiful work should move us or should provoke in us some type of emotion, of feeling, and should move us also to some reflection. Perhaps Peirce was looking for those reactions in his audience when he read his tale about Greece in the Century Club of New York (*MS L387*: letter to Francis C. Russell, 4<sup>th</sup> of May, 1892), and in one or two houses of friends. Perhaps Peirce got really that effect upon his audience, since John Fiske, who attended one of those sessions, wrote him "I was wildly interested in it and believed every word while you were reading. It was as real as them 'ere grapes of Zeuxis which the birds pecked at." (*MS L146*, 14<sup>th</sup> of June, 1893). We are sure that Peirce would sign what Picasso said on some occasion: "A work of art must not be something that leaves a man unmoved, something he passes by with a casual glance. It has to make him react, feel strongly, start creating too, if only in his imagination. He must be jerked out of his torpor." (Huffington 1989: 291).

### 3.3 Peirce's European correspondents

In the wide framework of our project on "Peirce's European Correspondence: Artistic Creativity and Scientific Cooperation" we have developed in the last two years a webpage of eight of the main European correspondents of Peirce. These webpages — some of them still in construction — and the correspondence in them included, albeit its sometimes fragmentary character, with some of the most prominent figures of the scientific and cultural European scene of his time is also a good indication of Peirce's belief in the social nature of science and creativity, and of his desire of integration in the international community of researchers, in the "unseen brotherhood of science", as his father Benjamin expressed to Augustus de Morgan in [the letter of the 17th of June](#) introducing his son Charles to him.

In a manuscript around 1907, Peirce acknowledges openly the importance that the journeys through Europe had for him, since they enable him to know directly the more relevant opinions of his time. We transcribe here the complete passage that we have used as [motto of our project](#):

Philosophy is a study which needs a very protracted concentrated study before one so much as begins to be at all expert in the handling of it, if one is to be precise, systematic, and scientific. I gave ten years to it before I ventured to offer half a dozen brief contributions of my own. Three years later, when I had produced something more elaborated, I went abroad and in England, Germany, Italy, Spain, learned from their own mouths what certain students at once of science and of philosophy were turning in their minds. (Letter to *The Sun*, *MS 325*: 4, c.1907).

Amongst those European correspondents of Peirce, the two British logicians Augustus de Morgan and Stanley Jevons stand out. Peirce quotes De Morgan (1806-1871), co-founder and first president of the London Mathematical Society, a lot of times throughout all his work, manifesting always his deep admiration towards De Morgan, who died ten days after Peirce's return to the United States. In his [obituary for \*The Nation\*](#) on the 13th of April of 1871 Peirce writes:

As a writer and a teacher, he was one of the clearest minds that ever gave instruction, while his genial and hearty manners in private and in the school-room strongly attached to him all who came in contact with him. He was a man

of full habit, much given to snuff-taking; and those who have seen him at the blackboard, mingling snuff and chalk in equal proportions, will not soon forget the singular appearance he often presented. (CN 1.42)

In 1898, Peirce wrote about his meeting with De Morgan in London in 1870 during his first trip to Europe:

(...) the immense superiority of the Boolean method was apparent enough, and I shall never forget all there was of manliness and pathos in De Morgan's face when I pointed it out to him in 1870. I wondered whether when I was in my last days some young man would come and point out to me how much of my work must be superseded, and whether I should be able to take it with the same genuine candor. (CP 4.4)

That meeting is also remembered by Peirce in a letter addressed to the British logician Philip Jourdain (1879-1919) on the 5<sup>th</sup> of December of 1908:

As far as my recollection goes, I was in London in 1870 for some months and called on De Morgan and carried him my paper and he then presented me with his; and I should say from memory unchecked, that almost all my acquaintance with De Morgan's system was derived from that and his Syllabus which he gave me the same day. (NEM 3.383)

Stanley Jevons (1835-1882) is remembered nowadays as one of the main characters of the "Marginalist Revolution" in theory of political economy of the 19<sup>th</sup> century and one of the champions of the mathematical approach to economy. Besides other interesting logic developments (as his defense of the inclusive interpretation of the disjunction), Jevons invented a mechanical procedure to perform inferences. Peirce's references to Jevons are numerous and show a sound knowledge of his work. In general, they show also the discrepancies between them that force Peirce to be very critical with an author, whom, nevertheless, he sincerely admires. On his turn, Jevons praises Peirce in some brief allusions: "The most elaborate recent contributions to mathematico-logical science, at least in the English language, are the memoirs of Prof. C. S. Peirce, the distinguished mathematician, now of the Johns Hopkins University, Baltimore." (Jevons 1881)

Amongst the European scientists with which Charles Peirce has contact we have started to study [Wilhelm M. Wundt](#) (1832-1920) and [Hermann L. F. von Helmholtz](#) (1821-1894). The work of Helmholtz fuelled decisively the modern development of physiology, psychology, optics, acoustics and electrodynamics. Helmholtz visited the United States in 1893 and met personally with Peirce and other American scientists. Peirce mentions very often Helmholtz and his first law of thermodynamics, which stands as the brightest contemporary discovery of his times. In the [obituary that Peirce prepared for \*The Nation\*](#) he shows a great appreciation of Helmholtz – "the acknowledged and worshipped head of the scientific guild" – and his work: "a reward was due from organized humanity to the man who had thus lifted man's mind to a higher vantage ground":

In every case he so conducted himself as to bespeak an imperious desire to find out the truth and to publish it; and every approach to personality was avoided or flung away from him as a pestilential infection. The world owes much to the intellectual clearness and integrity of Hermann Helmholtz, M.D.

We have studied also with a great attention the only Spaniard amongst his correspondents, the mathematician [Ventura de los Reyes y Prósper](#) (1863-1922), who

writes that "Peirce knows how to find exceedingly curious connections between things that at first glance seem not to exist." (Reyes, 1892: 171).

In relation with Peirce's interests in linguistics and semiotics, it should be highlighted that the correspondence that he kept between 1903 and 1912 with [Victoria Lady Welby](#) (1837-1912) was extremely important for Peirce and also for the reception of Peirce's thought in Europe. Lady Welby was a distinguished British aristocrat who acted as a center of spreading ideas amongst the British, Continental and American intellectuals of the last decades of the nineteenth century and the first decade of the twentieth. She denounced above all the "linguistic anarchy" (Macdonald 1912: 155) reigning in philosophical discussions, anticipating then in some sense the therapeutic approach to the use of language attributed to the later Wittgenstein (Deledalle 1990: 134).

The relation between Peirce and Lady Welby started effectively in 1903, after the publication of her book *What is Meaning?* and continued until 1912 when Welby died. It was Lady Welby who first contacted with Peirce, after having read several of his entries written for the *Dictionary of Philosophy and Psychology* (1902) of Baldwin, but it seems that both already knew about one another several years earlier (Schmitz 1985: cxlviii). Welby was familiar with Peirce's writings at least since 1893: in a letter answering to Paul Carus, the editor of *The Monist*, who wrote about Peirce as "a very ingenious and personally highly interesting thinker, a genius of great power" (letter of August 2, 1893), she answers "I am very much amused at what you say about Mr. Peirce, whose ability is well-recognized here, especially on the side of Logic." (August 17, 1893). In Peirce's review of *What is Meaning?* (CN 3.143-145, CP 8.171-175). Peirce notes the valuable distinction between three orders of signification that Peirce will identify more or less with his own threefold distinction of interpretants.

We have included in the European correspondents already studied the interesting figure of [Edward H. Palmer](#) (1840-1882), a Cambridge professor of Arabic languages whom Peirce met in Constantinople on the [2<sup>nd</sup> of September of 1870](#) and that Peirce met also later in England and mentions in several places. During all his life Peirce assured that under Palmer he started [to study Arab](#). Finally, we want to mention also the correspondence with the Italian moral philosopher [Mario Calderoni](#) (1879-1914), that we have started to study. Peirce addressed him a very important letter on 1905 making clear his own notion of pragmatism and his links with scholastic realism. Pragmatism – Peirce writes – "is not a system of philosophy. It is only a method of thinking; and your correspondent, *Giuliano il Sofista* [a pseudonym of his opponent Giuseppe Prezzolini in *Leonardo*], is quite right in saying that it is not a new way of thinking".

#### IV. CONCLUSION

It may be said that our project on "Peirce's European Correspondence: Artistic Creativity and Scientific Cooperation" has achieved its main goal relative to the completion of the transcription, translation into Spanish, annotation and illustration, and instalment in the web of the 17 letters of Charles Peirce corresponding to his first European sojourn, and also with the webpages of eight of his European correspondents. In the development of this project two really new discoveries have been made: 1) [Peirce's signature in the Reading Room](#) of the British Museum on the 18<sup>th</sup> of July; and 2) [Charles Drake's diary of 31 August of 1870](#) describing his visit of Constantinople accompanied by "Mr. Peirce (an American)". Besides that, dozens of

annotations and links in the letters provide a clearer image of what Peirce visited in his European trip.

The positive results with the first European sojourn pave the way, if funding is available, to pursue to the other stages of the project working in the correspondence of the following journeys and with other European correspondents. Also, it might be possible to think in translating the letters and all the apparatus to other European languages.

As a general conclusion it may be said that the letters studied in our project make very clear that Peirce's European sojourns, and in particular the first one in which our attention has been focused until now, were pretty relevant for Peirce's personal maturation as a scientist and as a philosopher. More than a source of anecdotal material, that journey had a permanent effect upon Peirce. That trip left in the man of sensibility and intelligence that he was a sediment that would be acting for years and that was also the germ of several of the theories that he would develop in more mature years.

In particular, we have tried to show what did mean for Peirce his participation in his first international scientific mission and his first contact with the European community of scientist. This experience would be reflected in the importance he attributes to the communitarian and fallible dimension of science. Similarly, we have tried also to show the impact on Peirce of his contemplation of a lot of works of art in very different places of Europe, and how that experience could affect decisively his conception of art as the capacity of expressing qualities of feeling making them reasonable.

The project that we have developed has helped us immensely to see Peirce, the scientist and the philosopher, as somebody more human, alive, and submitted to the forces of the experiences and impressions that these journeys provoke upon him. The feelings received in Europe will last, and on due time would fructify in new ways of understanding science and art. Peirce's thought is intertwined with life, and his first European sojourn provide us a better understanding of one of the greatest American thinkers of all times.

### **Sources of Peirce's Texts**

**CN** Peirce, C. S., (1975-1979). *Contributions to «The Nation»*, vols. 1-4, K. L. Ketner and J. E. Cook, editors, Lubbock, Texas Tech Press.

**CP** Peirce, C. S., (1931-1958). *Collected Papers of Charles Sanders Peirce*, vols. 1-8, C. Hartshorne, P. Weiss, and A. W. Burks, editors. Cambridge, MA, Harvard University Press.

**MS** *The Charles S. Peirce Papers*, (1966). 32 microfilm reels of the manuscripts kept in the Houghton Library. Cambridge, MA, Harvard University Library, Photographic Service.

**NEM** Peirce, C. S., (1976). *The New Elements of Mathematics*, vols. 1-4, C. Eisele, editor, The Hague, Mouton.

W Peirce, C. S. (1982- ). *Writings of Charles S. Peirce: A Chronological Edition*, vols. 1-6. M. H. Fisch et al, editors. Bloomington, IN, Indiana University Press.

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