

LEIBNIZ, PETER THE GREAT, AND THE SAINT PETERSBURG ACADEMY OF SCIENCES AND ARTS

M. Rosa Massa-Esteve
m.rosa.massa@upc.edu

1.-Introduction¹.

The eighteenth century was a period of development for the transmission of scientific knowledge in Europe. Most of this dissemination of knowledge was conducted through academies and their publications, the correspondence between scientists and the European travels of Kings, Emperors and men of science.

In 1725, Peter the Great (1672-1725), the Tsar of Russia, founded the Saint Petersburg Academy of Sciences and Arts², which became the main scientific centre in the country and has played a key role in the transfer and circulation of knowledge between European science and Russia.

The emergence of the Saint Petersburg Academy and its evolution took place over a period of many years. The Tsar of Russia drew up a plan for the creation of the Academy, which involved his trip to Western Europe in order to familiarize himself with the knowledge, inventions and new developments of the Enlightenment, as well as to establish contacts with European men of science. One of the Tsar's purposes was to devise a model for the modernization of Russia and to determine the reforms required in Russia in order to achieve this modernization. Indeed, many political, military and

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2 For an extensive bibliography on the history of the Saint Petersburg Academy of Sciences of Arts, see the following works: LIPSKI (1953); MINCER (1975); SCHULZE (1985); GORDIN (2000) and GOUZÉVITCH (2008).

cultural reforms were introduced in Russia during the Tsar's reign³. Peter the Great, who acquired the reputation of being a "Philosopher-King" or an "enlightened monarch", was also deeply interested in works of art as well as the development of different trades. He began his travels to Western Europe in 1697. In addition to visiting Germany, the Tsar also travelled to the Netherlands, where he learned about ship building. In 1698, he also visited the Royal Society of London, and later the Académie Royale des Sciences of Paris in 1717, where he was elected an «*associé étranger hors de tout rang*». However, the major influence was that exerted by Gottfried Wilhelm Leibniz (1646-1716), and one of the main models for Peter the Great's academy was therefore the Kurfürstlich Brandenburgische Societät der Wissenschaften (later the Berlin Academy of Sciences), founded on Leibniz's advice by the Prince-electoral Friedrich III of Brandenburg, who appointed him as president of this institution in 1700. In fact, the philosopher, mathematician and diplomat Leibniz met Peter I on three occasions and became a good friend of and advisor to the Russian Tsar⁴.

While some studies exist on the relationship between Peter the Great (hereafter Peter I) and Leibniz, they are focused only on certain aspects of this relationship⁵. More evidence is therefore required in order to gain a better understanding of how the influence of Leibniz's ideas was reflected in both the creation of Saint Petersburg Academy of Sciences and Arts and the modernization of Russia.

Thus, the aim of this article is to analyze Leibniz's influence on the Tsar of Russia in the undertaking of that endeavor by examining their correspondence and the projects (memoranda) that Leibniz presented to the Tsar in that regard in order to shed light on Leibniz's role in the creation of the Academy as well as on the Tsar's own ideas, such as the universality of knowledge and the significance of scientific knowledge as a theory for the practical applications aimed at improving people's living conditions, known as *Theoria cum*

3 See ANISIMOV (1993) and TREMBLAY (2020).

4 The meetings between Leibniz and Peter I took place in Torgau (1711), Carlsbad (1712), and finally in Pyrmont (1716), where they took the baths together. See an analysis of these meetings in MASSA-ESTEVE (2018b).

5 On the relationship between Leibniz and Peter I, see: GRIGORYAN (1970); VOISÉ (1975); PETSCHAUER (1979); KNOBLOCH (2003); GALE (2005); ROLL (2015), STUBER (2016) and MASSA-ESTEVE (2020).

praxi, which was also Leibniz's motto for the Berlin Academy⁶.

The studies cited, and the correspondence between Leibniz and Peter I, published by the historian, mathematician and professor at Moscow University, Vladimir Guerrier (1837-1919), constitute the main sources of this research, together with some of Leibniz's letters referring to the Tsar found in Leibniz's manuscripts⁷.

In the following section, after some brief biographical data about Leibniz, we analyze the letters exchanged between Leibniz and Peter's counsellors in the early years (1697-1712), including the memoranda, focusing on the modernization of Russia. In the third section, beginning with the appointment of Leibniz as Peter's advisor, we trace the evolution of these contacts and the last letters between these authors (1712-1716) concerning the creation and subsequent early development of the Academy. Finally, we reflect on the role played by Leibniz's ideas in Peter's thought by means of evidence from the Academy regarding the universality of knowledge and the Tsar's concept of scientific knowledge as theory for practice (*Theoria cum Praxi*).

2.-Leibniz's influence on the modernization of Russia: correspondence and memoranda.

In this section, after a few key dates in Leibniz's biography, we analyze the first letters between Leibniz and Peter I from 1695 until January 1712, including the first memorandum (in French) regarding the modernization of Russia.

Leibniz was born on July 1st, 1646, in Leipzig (Saxony)⁸. At the age of 15 he entered the University of Leipzig, where he studied philosophy and jurisprudence⁹. Leibniz, who obtained his doctorate in law in 1667 at the University of Altdorf, later rejected the offer of a teaching post at the university, explaining that he had completely different ideas in mind. In fact, Leibniz's concerns had

6 See HEINEKAMP (2000), 26-29.

7 On Leibniz's correspondence see: GUERRIER (1873) and LEIBNIZ (1971 and 2011).

8 For biographical dates about Leibniz, see: KREILING (1973); AITON (1985) and ANTOGNAZZA (2009).

9 At the age of 17 (1663) Leibniz was studying at the University of Jena, with Erhard Weigel (1625-1699), where he learned to develop ideas for binary mathematics and the philosophy of mathematics.

always extended beyond science to include social as well as political matters.

Leibniz worked at the court of Johann Philip von Schönborn in Mainz, where he embarked on an abundant correspondence that in 1671 led him to prolong contact with the secretaries of the Royal Society of London and the Paris Academy of Sciences, as well as in Italy, with Athanasius Kircher, and with Otto von Guericke of Magdeburg (Germany). Between the years 1672-1676, Leibniz visited Paris on diplomatic missions, the aim of which was to prevent attacks on the French territories ordered by Louis XIV around the river Rhine. His friendship with Christiaan Huygens (1629-1695) in Paris formed part of his training in mathematics (Hoffman, 1974)¹⁰. In 1676 he returned to Germany after a failed attempt to remain longer in Paris.

Leibniz arrived in Hanover, where between December 1676 until the end of 1679 he first served Duke Johann Friedrich of Brunswick-Lüneburg as a counsellor. Subsequently, between 1679 and 1698, he occupied a post with Duke Ernest-August of Hanover until his death, and later served Georg Ludwig, who went on to become King George I of Great Britain.

In 1685, Leibniz was commissioned to write a book on the history of the House of Guelph or Brunswick. For this purpose, in October of 1687 Leibniz began to travel throughout southern Germany, Austria and Italy to carry out research on these sources. While in Rome, Leibniz became interested in Chinese culture thanks to Jesuit missionaries¹¹.

Leibniz's interest in Russia had been aroused before the Tsar travelled to Europe. The realization that Russia was in a state of transition had already sparked his interest in the country, and subsequently led to his meeting with the Tsar. In fact, some quotations from Peter I can be found in Leibniz's letters before the Tsar embarked on his trip in 1697. For example, in a letter to Hoffrath Reyers, dated July 18th 1695, Leibniz stated that "the Tsar Peter has been inclined to introduce some of our more sophisticated European ways in Moskva"¹².

10 In accordance with Huygens' recommendation, Leibniz read works by James Gregory (1638-1675), Nicholas Mercator (1620-1687), John Wallis (1616-1703), Pietro Mengoli (1626 / 27-1686) and many others. In January, 1673, he went to London, where he met Henry Oldenburg (1619-1677), John Collins (1625-1683), John Pell (1611-1685), Robert Hooke (1635-1703) and Robert Boyle (1627-1691).

11 In 1692, Leibniz was also appointed director of the Wolfenbüttel Library in the courtyard of Duke Antoine Ulrich of Brunswick-Lüneburg and Prince of Wolfenbüttel (1633-1714).

12 "Le Czar Pierre a du penchant à introduire en Moskovie des façons plus polies de nostre Europe." (GUERRIER, 1873, N. 4, 4).

The Tsar's first trip to Europe, referred to as the Great Embassy of Peter I, lasted 535 days, from March 1697 to September 1698, at the beginning of which he travelled incognito. Peter I initially passed through Berlin without stopping on July 20th, 1697, and July 27th found him in Coppenbrügge, where he had dinner with Sophie of Hanover (1630-1714), the wife of the Elector Ernest-August of Hanover, and his daughter, Sophie Charlotte (1668-1705), who was a good friend of Leibniz.

Leibniz wished to meet Peter I in order to discuss their ideas, but had been unable to approach the entourage of the Great Embassy. However, he dispatched letters to the Tsar through his advisers, one of whom was the nephew of François Lefort (1656-1699)¹³, Pierre Lefort, who had for a long time been Peter's friend and adviser. He and the Tsar arranged to meet in Minden, a small village like Coppenbrüge, in the north of Germany. Leibniz asked the Tsar (through Pierre Lefort) about his genealogy, as follows: "I have a handwritten family tree of the Tsar's ancestors and family, but it would need assurances and clarification" and also the memoir "*Desiderata circa linguas quae sub Imperio Moschico et in vicinis regionibus usurpantur*" (July-August 1697), in which Leibniz expressed his desire for some examples of the different languages spoken in Russia and also for some territorial information about the country, while in the following letters he referred to specific projects (memoranda) for achieving the modernization of Russia. Thus, as an example, at the beginning of this correspondence with Lefort (in this case through the Count Palmieri), Leibniz conveyed to the Tsar his interest in examples of the languages spoken in Russia as well as Russia's frontiers with China, in order to know the terrestrial Globus better (July 25th, 1697).

"And as for the diversity of nations, I would very much like to be able to obtain samples of the languages of this country, to know about those which are entirely different from Russian, for example, from that of the Czircasses, Czeremisses, Kalmucs, Siberians, etc. and perhaps we will learn from this what places in Scythia the Huns and the Hungarians came out of. And since the Tsar's jurisdiction now extends to the borders of the Tartars of China, this information will be used to better know a large part of the terrestrial globe¹⁴."

13 François Lefort was a general and admiral of the Tsar in Russia under Peter I, and also the Tsar's advisor and friend.

14 "Et quant à la diversité des nations je souhaiterois fort de pouvoir obtenir des échantillons des langues de ce pays-là, sçavoir de celles, qui sont entièrement différentes de la Russe."

Leibniz continued this correspondence to Lefort by referring to the changes that the Tsar was obliged to undertake in order to make Russia a European country. In one of these letters addressed to Lefort (July-August 1697), Leibniz wrote that Peter I wanted to “attract to his country the sciences, arts and manners particularly of our Europe” and he then presented a project (memorandum) consisting of seven points which first enunciated and then described what was necessary for the Tsar to do in order to achieve these objectives.

In the first point of the project Leibniz set out the need to “establish a general institution for the sciences and the arts.” He noted that those appointed to this institution should be leading academicians, and explained that it was necessary to have a “suitable” fund. He also added that those chosen must be “well versed in science and the arts and of great genius”.

In the second point, which he described as “attract capable foreigners”, Leibniz suggested that “it is necessary to revoke or modify the laws”, so that foreigners can easily enter and leave Russia. He also stated that they (foreigners) must be “treated well”, by providing them with privileges and benefits.

“Because if they are treated well, for every one that will come out ten more will come. They must be granted certain privileges and advantages, and arrangements made in regard to the posts and cars provided to carry them or their furniture and clothes back and forth, and with regard to their homes, subsistence, justice, police and trade. And it will be necessary to deliberate whether it would not be advisable to assign them particularly certain places to make settlements there¹⁵.”

The third point is entitled: “Import foreign things that are worthwhile”. In reference to the foreign items that must be acquired, Leibniz mentioned books and instructions:

par exemple de celle des Czircasses, Czeremisses, Kalmucs, Sibériens, etc. et peut estre qu'on apprendra par-là de quels endroits de la Scythie les Huns et les Hongrois sont sortis. Et comme maintenant la juridiction du Tsar va jusqu'aux frontières des Tartares de la Chine, cette information servira a mieux connoistre une grande partie du globe terrestre”. (GUERRIER, 1873, N. 9, 10)

- 15 “Car si on les traite bien pour un qui sortira, ils en viendront dix autres. Il faut leur accorder certains privilèges et avantages et mettre ordre tant pour les postes et voitures pour amener ou ramener eux ou leurs meubles et hardes, qu'à l'égard de leurs habitations, subsistance, justice, police et négoce. Et il faudra délibérer, s'il ne seroit à propos de leur assigner particulièrement certains endroits pour y faire des colonies.” (GUERRIER, 1873, N. 13, 17)

“The foreign things which one could bring will include books and instructions on all kinds of matters, curiosities, rarities and beautiful things, which one can spread or imitate throughout the country. Thus we will need libraries, book-sellers and printing shops, cabinets of rarities of nature and art, conventional and zoological gardens, animals, shops containing all kinds of materials and offices for of all kinds of work¹⁶.”

Leibniz went on to say that all these things needed to be in accordance with practical purposes:

“There should be large observatories, mills, shops, pharmacies and factories, which will contain all kinds of machines and inventions ready to put to practical effect¹⁷.”

The fourth point read as follows: “Travel subjects with proper precautions”. Leibniz specified encouraging Russians to travel for the following purposes: “The travels of Russians may be for reasons of curiosity, commerce or employment¹⁸.” The fifth point is entitled: “Instruct the people at home”. On this point, Leibniz specified that Russians needed to be educated on home soil by the founding of schools and “academies of both science and arts and exercises”. His objective was to unite practice and theory (*Theoria cum praxi*) in schools as well.

“Fifth. The education of the people on home ground consists in the foundation of schools and academies both of sciences and arts and of exercises. To that end, it is necessary to choose good informants capable of carefully guiding children and young people to virtue as well as to science. For that reason, it is necessary to provide them with instructions as well as books made expressly for their use

16 “Les choses étrangères qu’on pourroit faire venir, seront des livres et instructions sur toute sorte de matières, des curiosités, raretés et belles choses, qu’on peut propager ou imiter dans le pays. Ainsi il faudra des bibliothèques, boutiques de libraires et imprimeries, des cabinets de raretés de la nature et de l’art, des jardins des simples et ménageries, des animaux, des magasins de toute sorte de matériaux et des officines de toute sorte de travaux.” (GUERRIER, 1873, N. 13, 17)

17 “Et enfin il y aura en grand des observatoires, des moulins, boutiques, officines et maisons de travail, qui contiendront toutes sortes de machines et inventions mises effectivement en exécution.” (GUERRIER, 1873, N. 13, 18)

18 “Les voyages des Russes peuvent être de curiosité et de commerce ou employ.” (GUERRIER, 1873, N. 13, 18).

and for that of the schoolchildren, and also to procure books, instruments and opportunities for exercising them¹⁹."

The sixth point is entitled: "Determine the exact relations of the country in order to identify its needs". Leibniz also stressed the importance of learning about one's own country and customs, including the languages spoken in Russia and its geographical boundaries. In regard to this point, Leibniz stated that:

"To make the maps, it will be necessary to send engineers and make observations of the latitudes, longitudes and the magnetic variation in order to investigate the entire coastline of the northeast as far as possible, to learn if Asia is connected to America or if one can pass between the two continents²⁰."

The seventh and final point referred to "Supplement for what is missing." Leibniz explains that it was necessary to compensate for what was lacking in the country by imitating and perfecting what was being done elsewhere.

He continued his correspondence with Pierre Lefort and other contacts of the Tsar in Hanover. However, he spent extended periods of time in Berlin until 1708, at which juncture he was appointed president of the Berlin Academy of Sciences (1700), with the lemma: *Theoria cum praxi* (Popp; Stein, 2000).

At the beginning of December, 1708, Leibniz arrived in Vienna and was able to meet with Johann Christoph von Urbich, the Tsar's Minister Plenipotentiary in Vienna, "who asked him to prepare a plan for the advancement of the sciences in Russia" (Antognazza, 2009, 465). Leibniz agreed, and in December, 1708, he wrote a similar memorandum in German²¹, while

19 "Cinquièmement. L'instruction des peuples chez soi consiste dans la fondation des écoles et Académies tant de sciences et arts que des exercices. A quoy il faut faire un choix de bons instituteurs, qui ayent soin de mener les enfans et la jeunesse à la vertu aussi bien qu'à la science. Il faudroit pour cela leur donner des instructions, faire faire des livres exprès pour leur usage et pour celui des écoliers, procurer des livres, instruments et occasions de les exercer." (GUERRIER, 1873, N. 13, 18).

20 "Pour faire les cartes il faudroit envoyer des ingénieurs, observer les hauteurs, longitudes et variations de l'aimant, reconnoistre les côtes sur tout dans le Nordest autant qu'il se peut, pour apprendre si l'Asie est jointe à l'Amérique, ou si on peut passer entre eux." (GUERRIER, 1873, N. 13, 19).

21 The memorandum entitled "Concept of a memorandum from Leibniz", written in German language: "Concept einer Denkschrift von Leibniz", can be found at GUERRIER (1873, N. 73, 95-100).

in a subsequent letter to Urbich, dated August 27th, 1709, he set out his ideas about the competence and the suitability of Peter I himself to undertake this project in Russia:

“For myself, who am concerned for the good of mankind, I am highly delighted that such a great Empire should pursue the path of reason and order, and I consider the Tsar to be the person whom God has destined for a great work”²².

Again, in another letter to Urbich, sent from Wolfenbützel on December 27th, 1710, Leibniz described the Tsar as a “prince wise and full of moderation”²³.

We do not know if Peter I read the letter of 1697 containing the seven points outlined above, or the memorandum in German of 1708, but we are sure that the first meeting between Peter I and Leibniz took place between October 13th-19th, 1711, in Torgau, a German city to northeast of Saxony on the banks of the Elbe. Although in this first meeting Leibniz was not received in private audience by the Tsar as he had expected, he managed to meet Peter I in person at a dinner, where they spoke about the project on the modernization of Russia based on the development of education, science and the arts. This meeting is described in detail in a letter addressed to the Electress Sophie of Hanover and dated October 31st, 1711 (Leibniz, 2011, N. 242, 296-297), in which Leibniz stated that he had discussed his plans personally with Peter I.

He then went on to outline these plans for Russia in another letter of 1711 entitled “Plan composed by Leibniz during his meeting with the Tsar Peter in Torgau”²⁴, and added 4 points more: 1) The usefulness of providing studies for young people in all regions of Russia; so that they can learn customs, languages, arts and sciences well; 2) Make observations in the physical and technical realm (which is *Naturae* and *Artis*) to also include astronomy; 3) Bring from Europe and China or Cathay their practices and introduce them

22 “Pour moy qui suis pour le bien du genre humain, je suis bien aise qu’un si grand Empire se mette dans les voyes de la raison et de l’ordre, et je considère le Tsar en cela comme une personne que Dieu a destinée à de grand ouvrage. (GUERRIER, 1873, N. 88, 120). And on September 2nd 1709, Leibniz added in a letter to Urbich, showing again the plans for Russia, the idea of *Tabula Rasa*. On *Tabula Rasa*, see ROLL (2015).

23 “Je crois que le Czar qui est un prince sage et plein de modération...” (GUERRIER, 1873, N. 114, 157).

24 “Von Leibniz während seines Zusammenkunft mit dem Tsar Peter in Torgau aufgesetzte Concepte.” (GUERRIER, 1873, N. 127, 180).

into the Tsar's empire, so they may bring a large amount of money into the country; 4) On the economic benefits that Russia can obtain by implementing these plans." Furthermore, he includes a paragraph entitled "Particularities", which contains a further 8 points referring to magnetic observations, the calculation machine, and others.

However, to fully assess Leibniz's influence on the Tsar in this matter, it is appropriate to quote from a new letter in order to understand Leibniz's vision of the development of science. This letter, dated January 16th, 1712, that Leibniz sent to Chancellor Gavrii Ivanovich Golovkin, he stated that his main purpose was the growth of knowledge:

"And as since my youth my great goal has been to work for the glory of God by the growth of the sciences, which mark best the power, wisdom and divine goodness, (In which I succeeded in part by divine grace, having made important new discoveries that are quite well known in the republic of letters), and since I have preferred this goal to honors and fortune²⁵."

In addition, Leibniz returned once again to this goal in the belief that the Tsar was the right person to achieve this undertaking in Russia:

"Although circumstances have obliged me to assume responsibilities in which justice, history and political affairs have been my object, I am always ready to turn my thoughts towards this great goal, to which end my sole concern has been to search for a great prince who has the same goal as me. I believe that I have found him in the person of the Great Tsar²⁶..."

Leibniz went on to talk about the flourishing science in Russia, and knowledge as a treasure of mankind:

25 "Et comme depuis ma jeunesse mon grand but a été de travailler à la gloire de Dieu par l'accroissement des sciences, qui marquent le mieux la puissance, la sagesse et la bonté divine, (En quoi j'ai réussi en partie par la grâce divine, ayant fait des nouvelles découvertes importantes assez connues dans la république des lettres) et comme j'ai préféré ce but aux honneurs et à la fortune." (GUERRIER, 1873, N. 141, 203).

26 "Quoyque les conjonctures m'ont obligé d'entrer dans des charges, où j'ai eu la justice, l'histoire et les affaires politiques pour objet, je suis toujours prest à tourner mes pensées vers ce grand but et je n'ai cherché qu'un grand prince qui ait le même but. Je crois de l'avoir trouvé dans la personne du Grand Czar..." (GUERRIER, 1873, N. 141, 203).

“And in this endeavour I make no distinction of either nation or party, but would rather see the sciences flourish greatly in Russia than to see them poorly cultivated in Germany. The country where this will best be achieved is that which will be dearest to me, since the whole human race will always benefit from it and its true treasures will be increased. Because the true treasures of mankind are the arts or the sciences²⁷.”

In this examination of Leibniz’s letters, we can trace the evolution of the relationship between Leibniz and the Tsar. Leibniz’s prime interest was in the country itself; that is to say, to get to know Russia, its languages and culture, and thereby gain a greater understanding of the eastern part of Europe. However, it immediately becomes apparent that the Tsar himself also arouses great interest and admiration in Leibniz, eliciting his praises. Furthermore, the fact that the Tsar was able to contribute to Leibniz’s most essential goal, which was the development of knowledge not only for Russia but for all mankind, further spurred Leibniz’s interest. Their relationship in the last years of Leibniz’s life would become more familiar and endearing, as we show in the following section.

3. -Leibniz as counsellor to the Tsar. The creation of the St. Petersburg Academy.

From 1712 until his death, Leibniz continued to send letters and memoranda to the Tsar, and eventually became Peter’s friend. In addition, he was appointed counsellor to the Tsar and was in charge of helping in the project of the future Academy.

In a letter dated September 22th, 1712, Baron Johann Christoph Schleiniz replied to Leibniz, referring to a mathematical instrument, the translation of Leibniz’s memoranda from French to the Muscovite language, the remuneration (money) paid to him, the decree of his nomination as an advisor and the

27 “Et en cela je ne distingue ny nation ny party, et j’aimeray mieux de voir les sciences rendues fort fleurissantes chez les Russes que de les voir médiocrement cultivées en Allemagne. Le pays où cela ira le mieux, sera celuy qui me sera le plus cher, puisque tout le genre humain en profitera toujours et ses vrais trésors en seront augmentés. Car les vrais trésors du genre humain sont les arts ou les sciences.” (GUERRIER, 1873, N. 141, 203).

next meeting arranged between Leibniz and the Tsar²⁸.

“I personally gave His Tsarian M. the mathematical instrument which you presented to him, Mr. His M was very pleased with it. He spent more than half an hour examining and handling this instrument, even making notes about it in my presence. I have also placed your memoirs in the hands of the General Feldzeugmeister of Bruce, Mr.. They are now being translated from French into the Muscovite language and Mr. General Feldzeugmeister will then put them into the hands of His Majesty the Czar himself²⁹”.

In fact, Peter I officially signed off on the appointment of Leibniz as advisor on November 1st, 1712. Leibniz gave an account to the electress Sophie of Hanover in enthusiastic terms about his meeting with the Tsar in Carlsbad (Bohemia), and how after his appointment he almost felt himself to be a Solon of Russia. Through his Grand Chancellor Golofkin, the Tsar conveyed to the electress what he felt he must do for Russia: “I must redress the laws and draft regulations on the law and the administration of justice³⁰”.

From 1712 to 1714, Leibniz stayed at the Viennese court where he was appointed advisor to Emperor Charles VI. In September, 1714, he suffered several illnesses that forced him to stay in bed from time to time before returning to Hanover. However, he maintained an extensive exchange of correspondence during the last years of his life and tried to renew his contact with Peter the Great.

Two years later, Leibniz was again able to meet the Tsar in Pymont (Lower Saxony), since Peter, who was on his way to Copenhagen, arrived in Herrenhausen on June 5th, 1716, and on the following day went to Pymont

28 In another letter dated September 23th of 1712 addressed to Tsar through Schleiniz, Leibniz again explained the plan and the process to Peter I, with the suggestion that he begin by establishing an Academy in the city of Petersburg (GUERRIER, 1873, N. 155, 234).

29 “J’ai donné en mains propres de Sa M. Czarienne l’instrument de mathématique dont vous lui avez fait présent, Mr.. Sa M. en a été très contente. Il s’est arrêté plus d’une demie heure à regarder et manier cet instrument, ayant même crayonné après dans ma présence. J’ai mis aussi entre les mains du Général Feldzeugmeister de Bruce vos mémoires, Mr. On les traduit actuellement du François dans la langue Moscovite et Mr. Le Général Feldzeugmeister les mettra après lui même en mains propres de Sa M. Czarienne.” (GUERRIER, 1873, N. 153, 226). It is interesting to remark the fact that the Tsar could read this memorandum after its translation.

30 “Je dois redresser les loix et projeter des réglemens sur le droit et l’administration de la justice.” (GUERRIER, 1873, N. 178, 272)

to take the baths. They stayed there together until June 26th, when the Tsar continued his journey to Copenhagen via Herrenhausen on June 28th.

During this stay in Pymont, Leibniz wrote a memorandum in German consisting of 12 pages and entitled "Concept of a Memorandum by Leibniz on the Improvement of the Arts and Sciences in the Russian Empire³¹". In this memorandum he commented on the meeting in Pymont in a letter to the geographer Louis Bourguet, dated July 2nd, 1716, , in which he again expressed his admiration for the Tsar and referred once more to his geographical concerns regarding the connections between Asia and America (Kuentzel-Witt, 2018):

"I cannot but admire the vivacity and judgment of this great Prince. He calls upon clever people from all sides, and when he talks to them they are all astonished by the way he addresses his proposals. He is informed about all the mechanical arts, and his greatest curiosity is for everything related with navigation; and thus he is also greatly interested in Astronomy and Geography. I hope that we will learn through him whether Asia is attached to America³²".

After his stay in Pymont, Leibniz wrote another letter dated August 3rd, 1716, this time to Robert Erskine (1677-1718), the Tsar's chief physician, in which he said that he was working on a calculating machine for the Tsar.

"I beg you, Monsieur, to mark my devotion to the Majesty of the Grand Czar, and to say that my Arithmetic Machine is advancing with great strides; and that I can report that it is having some effect. It may one day serve as a present to the Monarch of China or to another Great King, by means of an embassy that may be sent thereto³³".

31 "Concept einer Denkschrift Leibniz's über die Verbesserung der Künste und Wissenschaften in Russischen Reich." (GUERRIER, 1873, N. 240, 348-360)

32 "Je ne saurois assez admirer la vivacité et le jugement de ce grand Prince. Il fait venir des habiles gens de tous côtés, et quand il leur parle, ils en sont tout étonnés, tant il leur parle à propos. Il s'informe de tous les arts mécaniques; mais sa grande curiosité est pour tout ce qui a du rapport à la navigation; et par conséquent il aime aussi l'Astronomie et la Géographie. J'espère que nous apprendrons par son moyen, si l'Asie est attachée à l'Amérique." (GUERRIER, 1873, N. 241, 360)

33 "Je vous supplie, Monsieur, de marquer ma dévotion à la Majesté du Grand Czar, et de dire que ma Machine Arithmétique avance à grands pas; et que je fais état d'en montrer quelque effect. Elle pourra servir un jour de présent au monarque de la Chine ou à un autre Grand Roy, avec una ambassade qu'on auroit dessein de luy envoyer." (GUERRIER, 1873, N. 243, 364)

In the same letter Leibniz also mentioned Blumentrost, whom they had met in Pymont and who later become the president of the St Petersburg Academy of Sciences and Arts. Leibniz wrote a further memorandum, in this case about the colleges that the Tsar should create. The text, entitled: "Memorandum on the colleges. Most serene Zaar. Most gracious sir!", is written in German and consists of four pages in which he outlines the college system for helping the development of education in Russia³⁴. Shortly after, Leibniz died in Hanover on November 14th, 1716, without ever seeing the creation of the St Petersburg Academy.

According to Gordin (2000, p. 4), Leibniz's main influence on the Tsar and Russia is centered on the Saint Petersburg Academy: "the most significant influence was in fact that of Leibniz, and the Berlin Academy of Sciences... The Imperial Academy, as it was finally formulated, bore remarkable similarities to Leibniz's own Berlin academy". Both Leibniz and the Berlin Academy exerted a combined influence on the creation of Saint Petersburg Academy of Sciences and Arts, which among other features was emulated for its historical and linguistic subjects. Moreover, later scholars who were candidates for becoming academicians at the Saint Petersburg Academy were recruited on the advice of Leibniz's correspondent, Christian Wolff (1679-1754).

Indeed, Peter I contacted Wolff in 1720, and in 1722 sent Johann Daniel Schumacher (1690-1761), later librarian of Saint Petersburg Academy, to see him with the purpose of offering him the vice-presidency of the Academy with a good salary, although Wolff did not accept it. However, he helped the Tsar to recruit foreign scientists for the Imperial Academy of Sciences, such as Jacob Hermann (1678-1733), Daniel Bernoulli (1700-1782) and Leonhard Euler (1707-1783)³⁵.

Peter the Great submitted a document outlining the Academy Project to the Russian Senate in January 1724. As set out in this document, the academy consisted of three classes or departments: a) Mathematics and mathematical physics concerning the related sciences of astronomy, geography and navigation; b) the whole of the physical sciences, including experimental and theoretical physics, anatomy, botany and chemical sciences, and finally, c) the humanities,

34 "Denkschrift über die Collegien. Allerdurchlauchtigster Zaar. Allergnädigster Herr!" (GUERRIER, 1873, N. 244, 364).

35 The correspondence between Wolff and Schumacher, the Grand Chancellor Golofkin and Blumentrost, regarding the organization of the arrival of foreigners at Saint Petersburg Academy of Sciences can be found in WOLFF (1860).

embracing rhetoric, the study of antiquities, ancient and modern history, law, economics and politics. Indeed, the Tsar incorporated the third class on humanities in accordance with Leibniz's Academy and his memorandum.

The project also included a proposal for a university as a part of the academy, consisting of three faculties (until 1747); law, medicine and philosophy. The Academy was staffed by 84 people: 17 academicians who were also professors; 1 adjunct; 1 master of astronomic instruments; 1 *sprach-master*; 11 students; 7 engravers; 2 illustrators; 6 translators; 3 library assistants; 7 printers; 8 unofficial students; 10 staff members and 10 service personnel. In addition, in accordance with Leibniz and Wolff's idea, the project for this Academy had to include a proposal for a university as a part of the academy. Academy members were therefore required both to teach and to conduct research, a development that was original and pioneering in that period (Massa-Esteve, 2018a). An academic gymnasium for preparing young men for university studies was also included, and began functioning before the creation of the Academy.

Peter the Great offered the highest salaries (as Leibniz had asked him to do in the memorandum) and ordered the construction of premises on the Neva, which included laboratories, a library, a museum, a conference room, an anatomical dissecting theatre, faculty offices and service rooms, all of which provided the ideal conditions for academic training and research, just as Leibniz had described in his memorandum

The Tsar died on January 28th, 1725, and on December, 1725, his widow, Catherine I, issued a decree to the Russian senate confirming the establishment of the Academy of Sciences and Arts in accordance with Peter's project from January 1724: "On the introduction of the Academy of sciences and on the nomination, as its president, the royal physicist L.L. Blumentrost" (received by the Senate on December 7th 1725).

Among the academicians who arrived at the Academy from Europe between June and December, 1725, we find the following: Jacob Hermann, Joseph-Nicolas Delisle (1688-1768), Christian Goldbach (1690-1764), Georg Bernhard Bülfinger (1693-1750), Friedrich Christoph Mayer (1697-1729), Nicolas Bernoulli (1695-1726), Daniel Bernoulli, and later in 1727, Leonhard Euler³⁶. In fact, all these people were of outstanding ability and well versed in science and the arts,

36 On Euler's first stage at Saint Petersburg Academy of Sciences see MASSA-ESTEVE (2017 and 2018a).

just as Leibniz had requested of Peter I in his memorandum.

Academics were to meet weekly in order to present and discuss scientific topics, and also to assemble at 4:00 pm on Thursdays and Fridays. The Petersburg Academics were expected to present some annual reports at these twice-weekly conferences. They published the results of these researches in the academy's journal, the *Commentarii Academiae scientiarum imperialis Petropolitanae*. These conferences were lively and sometimes heated affairs, the subjects in which ranged broadly from the shape of the Earth or whether the Cartesian, Newtonian and Wolffian belief that there was life on the Moon could be confirmed. Indeed, at the first meeting the physical theories of Leibniz and Wolff came up for discussion (Tremblay, 2020). Academics learned about new fields as well as participating actively in these discussions, and wrote many reports on the conferences in which Leibniz's scientific ideas were often addressed.

4. Some reflections on Leibniz's legacy.

First of all, it is worth emphasizing the mutual admiration that existed between the Russian monarch and Leibniz, examples of which are provided in this article.

Leibniz regarded knowledge as universal and should be available to everybody. Knowledge needs to be coherent and systematically organized, a task that properly falls to the academies. To this end, Leibniz envisaged the creation of a network of academies and scientific centers in Europe, including Russia, in order to coordinate all knowledge.

Later, in accordance with Leibniz's ideas, Peter I explained that the purpose of the new academy was not merely to transmit knowledge but to acquire and expand it. The main purpose was the establishment of:

"an edifice which will not only serve to spread the sciences of the present day to the glory of the state, but also through the teaching and propagation of the same be of use to the nation in the future³⁷."

This is the point on which Leibniz and the Tsar are united, and it is the

37 *Materialy dlya istorii*, vol. 1, 1885, 15.

confluence of ideas of these two protagonists that made the project in Russia a success. Furthermore, like Leibniz, Peter I himself regarded mechanics, mathematics, astronomy and chemical science as tools for the construction of ships, canals and docks to provide for navigation, to improve artillery, to develop mining facilities and to benefit public health. This is the vision behind uniting theory with practice (*Theoria cum praxi*), which Leibniz had already expressed in the motto of his Academy in 1700.

It is for this very reason that Leibniz advised Peter I on the creation of a scientific academy in St. Petersburg, which led to the realization of Tsar's dream that Russia could become a European country on an equal footing with all the others. Indeed, Leibniz wrote directly to the Tsar or his advisers 9 memoranda (3 of which were written in the summer of 1716), examples of which we provide in this study.

Further evidence of Leibniz's influence on the Tsar can be found in the words formulated by Fontenelle in his eulogy of Leibniz, which he penned after Leibniz's death in 1716. Fontenelle praised him in the following way:

"The Tsar gave Mr. Leibniz a magnificent gift, and accorded him the title of his Private Counsel of Justice with a considerable pension. But, what is even more glorious for him, the History of the establishment of Sciences in Muscovy will forever be remembered, and his name will be mentioned alongside that of the Tsar³⁸."

These words, 9 years before the creation of Academy, show two things: the close relationship between Peter I and Leibniz, and that in 1716 Fontenelle was convinced that an Imperial Academy of Sciences and Arts would be created in Russia in accordance with Leibniz's ideas.

Thus, Leibniz's influence after his death in 1716 persisted thanks to the characteristics embodied in the formation of the Academy as well as the subjects of knowledge addressed in the Academy's meetings. A further decisive factor regarding the creation of the Academy of Sciences may well have been Peter I's sojourn in Paris, where he met the French geographer Delisle at a special

38 "Le Tsar fit à M. Leibniz un magnifique présent, et lui donna le titre de son Conseiller privé de Justice avec une pension considérable. Mais, ce qui est encore plus glorieux pour lui, l'Histoire de l'établissement des Sciences en Moscovie ne pourra jamais l'oublier, et son nom y marchera à la suite de celui du Tsar". (FONTENELLE, 1716, 124)

session of the Académie Royale des Sciences in Paris, on June 19th, 1717.

The establishment of the Imperial Academy went to become a reality in 1725, in consonance with Leibniz's recommendations as to the type of people appointed, changes in the law, and the creation of a school and university for the training of Russians, which were quite unlike other academies established in Europe.

As a consequence, little by little, Russian scientists, most of who were trained in the university and the secondary school of the Saint Petersburg Imperial Academy, occupied positions in this Academy (Schulze, 1985). One such example worthy of mention was the physicist, chemist and astronomer, Mijaíl Vasíliovitch Lomonósov (1711-1765), who had studied in the Imperial Academy of Saint Petersburg, and who later was appointed as professor and academician of this institution in 1745.

There is therefore no doubt that all the contacts, memoranda and letters between Leibniz and Peter I eventually led to a satisfactory result; on the one hand, a general development of science in Russia, and on the other the modernization of Russia itself.

5.-References.

- AITON, E. J. (1985) *Leibniz: A Biography*, Bristol; Boston, Adam Hilger.
- ANISIMOV, E. V. (1993) *The Reforms of Peter the Great: Progress through Coercion in Russia*, trans. by J. T. Alexander, London, Sharpe.
- ANTOGNAZZA, M. R. (2009) *Leibniz: An Intellectual Biography*, Cambridge, Cambridge University Press.
- FONTENELLE, B. Le B. (1716) « Éloge de Godefroy Guillaume Leibnitz », *Histoire de l'Académie Royale des Sciences, Avec les Mémoires de Mathématique & de Physique pour la même Année*, 94–128.
- GALE, G. (2005) "Leibniz, Peter the Great, and the modernization of Russia or Adventures of a Philosopher-King in the East", *Divinatio, studia culturologica series*. vol. 22, 1–36.
- GORDIN, M. D. (2000) "The Importation of Being Earnest: The Early St. Petersburg Academy of Sciences", *Isis*, vol. 91, No. 1,1–31.
- GOUZÉVITCH, I.; GOUZÉVITCH, D. (2008) "Introducing mathematics, building an empire: Russia under Peter I". In: ROBSON E.; STEDALL, J. (eds.) *The Oxford Handbook of the History of Mathematics*, Oxford, Oxford

- University Press, 353–373.
- GRIGORYAN, A. T. (1970) “Leibniz and Russia”, *Organon*. vol. 7, 195–208.
 - GUERRIER, V. (1873) *Leibniz in Seinen Beziehungen zu Russland und Peter dem Grossen*, Hildesheim, Gerstenberg. Reprinted: St. Petersburg, Leipzig, Akademie der Wissenschaften, 1975.
 - HEINEKAMP, A. (2000) “Leibniz today”. In: POPP, K.; STEIN, E. (eds) *Gottfried Wilhelm Leibniz. Philosopher, Mathematician, Physicist, Engineer*, Hannover, Schlütersche; Hannover, Universität Hannover, 22- 35.
 - HOFFMAN, J. (1974) *Leibniz in Paris. 1672-1676. His growth to mathematical maturity*, Cambridge, Cambridge University Press.
 - KNOBLOCH, E. (2003) “Leibniz und die St. Petersburg Kunstammer”. In: BUBERL, B.; DÜCKERSHOFF, M. (eds.) *Palast des Wissens, Die Kunst- und Wunderkammer Zar Peters des Großen*, München, Firmer Verlag, vol. 2, 124–132.
 - KREILING, F. (1973) “Leibniz”. In: GILLISPIE Ch. C. (ed.) *Dictionary of scientific biography*, New York, Scribners’s, vol. 8, 149–150.
 - KUENZEL-WITT, K. (2018) “Peter the Great’s Intermezzo with G. W. Leibniz and G. Delisle: The Development of Geographical Knowledge in Russia”, *Quaestio Rossica*. vol. 6, n. 1, 63–78.
 - LEIBNIZ, G. W. (1860) *1705-1716, Briefwechsel zwischen Leibniz und Christian Wolff*, ed. by Carl I. Gerhardt, Halle. Reprinted: Hildesheim/New York, Olms, 1971.
 - LEIBNIZ, G.W. (2011) “Sämtliche Schriften und Briefe”. In: *Reihe 1: Allgemeinen, politischen und historischen Briefwechsels*, Berlin, Akademie-Verlag.
 - LIPSKI, A. (1953) “The Foundation of the Russian Academy of Science”, *Isis*. vol. 44, n. 4, 349–354.
 - MASSA-ESTEVE, M. R. (2017) “Sankt-Peterburgskâ Akademiâ Nauk ot Petra I do Ekateriny II: Leonard Ejler”. In: *Petro primo Catharina secunda; Dva monarha, dev epohi-preemstvenmost’, ravzitie reformy*, SPb., Evropejskij dom, 190-202.
 - MASSA-ESTEVE, M. R. (2018a) “The circulation of scientific knowledge in Euler’s first stage at Saint Petersburg Academy of Sciences”. In: D’ANGELO, F. (ed.) *The scientific dialogue linking America, Asia and Europe between the 12th and the 20th Century. Theories and techniques travelling in space and time*, Naples, Associazione culturale Viaggiatori, 262-276.
 - MASSA-ESTEVE M. R. (2018b) “Vstreci Petra I i Lejbnica v 1711, 1712 i

- 1716 godah". In: *Evropejskie maršruty Petra Velikogo : K 300-letiu vizita Petra I vo Franciu : Materialy IX Meždunarodnogo petrovskogo kongressa (Pariž - Rejms, 20-22 aprilâ 2017 goda)*, SPb., Evropejskij dom, 280 – 291.
- MASSA-ESTEVE, M. R. (2020) "Vlijanie vzaimootnoshenij Petra I i Lejbica na razvitie nauki v Rossii". In: *Rossia i Germanija v Petrovskuju èpohu: istoricheskie i kul'turnye svjazi*, SPb., Evropejskij dom, 258-271. *Materialy dlya istorii Imperatorskoi Akademii nauk*, St Petersburg, Tipografiya Imperatorskoi Akademii nauk, vol 1, 1885.
 - MINCER, W. (1975) "Les origines de l'Acadèmies des Sciences à St. Pétersbourg", *Organon*, vol. 11, 129–135.
 - PETSCHAUER, P. (1979) "The philosopher and the Reformer: Tsar Peter I, G. W. Leibniz and the College System", *Canadian-American Slavic Studies*, vol. 13, n. 4. 473-487.
 - POPP, K.; STEIN, E. (2000) *Gottfried Wilhelm Leibniz. Philosoph, Mathematician, Physicist, Engineer*, Hannover, Universität Hannover.
 - ROLL, CH. (2015) "Barbaren? *Tabula Rasa*? Wie Leibniz sein neues Wissen über Russland auf den Begriff brachte. Eine Studie über die Bedeutung der Vernetzung gelehrter Korrespondenzen für die Ermöglichung aufgeklärter Diskurse". In: BEIDERBECK, F.; DINGEL, I.; LI, W. (eds) *Umwelt und Weltgestaltung: Leibniz' politisches Denken in seiner Zeit*, Göttingen, Vandenhoeck & Ruprecht GmbH & Co. KG., 307–358.
 - SCHULZE, L. (1985) "The Russification of the St. Petersburg Academy of Sciences and Arts in the eighteenth century", *British of Journal of History of Science*, vol. 18, 305–335.
 - STUBER, R. (2016) "Leibniz's Bemühungen um Russland: eine Annäherung". In: KEMPE M. (ed.) *1716-Leibniz' Letztes Lebensjahr*, Hannover, Gottfried Wilhelm Leibniz Bibliothek, 203–242.
 - TREMBLAY, F. (2000) "Russian Leibnizianism". In: WECKEND J.; STRICKLAND, LL. (eds) *Leibniz's Legacy and Impact*, New York, London, Routledge Taylor & Francis Group, 165–201.
 - VOISE, W. (1975) "Le premier projet de l'Académie Russe des Sciences à la lumière de la correspondance de Leibniz avec Pierre 1er", *Organon*, vol. 11, 115–127.
 - WOLFF, CH. (1860) *Briefe von Christian Wolff aus den Jahren 1719-1753*, Ein Beitrag zur Geschichte der Kaiserlichen Academie der Wissenschaften zu Saint Petersburg. (New edition, 2010).