

The Scientific Correspondence Of Augusto Righi

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In 1988, during the celebrations of the nine hundredth anniversary of Bologna University, the *Accademia Nazionale delle Scienze "detta dei XI"*, represented by Prof. G.B. Marini Bettolo, donated a microfilmed copy of the correspondence to the University of Bologna. On that occasion, after requesting permission from the Righi family, the Chancellor of the University, Fabio Roversi Monaco arranged for the donation to be transferred to its rightful home, the Physics Museum in what is now the Physics Department of the University.

Giovanni Gottardi and Marina Manferrari undertook a systematic examination of the microfilmed materials at the Physics Museum of the University of Bologna, under the supervision of Prof. Giorgio Dragoni.

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1. The Correspondence

The scientific correspondence of A. Righi covers a period extending from 1889, the year in which Righi returned to the University of Bologna from the University of Padua, and 1920. It continues even after Righi's death (8.6.1920) with letters of condolence and brief sequels in 1921 and 1925, all letters addressed to A. Righi's son, Aldo.

The letters offer insight into an extremely broad cross-section of the sciences of that period. By way of example we shall mention just a few of the most famous names: among foreign scientists: H. Abraham, H. Becquerel, W. Crookes, O. Chwolson, P. e M. Curie, M. de Broglie, P. Drude, C. Guillaume, A. Gullstrand, H. Hertz, H. Kamerlingh Onnes, J. Larmor, P. Lebedev, G. Lippmann, M. von Laue, P. Lenard, H. Lorentz, O. Lodge, H. Nagaoka, J.B. Perrin, H. Pettersson, M. Planck, J.H. Poincaré, W. Ramsay,

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J.W. Rayleigh, O.W. Richardson, W. Röntgen, E. Rutherford, E. Solvay, J. Stark, J.J. Thomson, E. Warburg, E. and G. Wiedemann and P. Zeeman; among Italian scientists: L. Amaduzzi, R. Arnò, M. Ascoli, A. Banti, E. Beltrami, L. Bombicci, P. Blaserna, F. Brioschi, G. Bruni, S. Cannizzaro, G. Ciamician, O.M. Corbino, L. Cremona, R. Felici, E. Freda, A. Garbasso, C. Golgi, T. Levi-Civita, A. Lo Surdo, Q. Majorana, A. Mosso, A. Murri, R. Oechialini, A. Ròiti, G. Vanni, G. Valle and V. Volterra.

The Righi Correspondence consists of 1338 letters, divided as follows:

Letters in Italian	950
Letters in French	208
Letters in English	114
Letters in German	66

and dispatched from the following countries:

<i>Austria</i>		<i>Belgium</i>	
French	2	French	8
Italian	1		
<i>Czechoslovakia</i>		<i>France</i>	
French	1	French	121
<i>Germany</i>		<i>England</i>	
German	64	English	102
Italian	12	French	7
French	7	Italian	4
<i>Italy</i>		<i>Holland</i>	
Italian	923	French	32
		German	2
<i>Poland</i>		<i>Portugal</i>	
Italian	1	French	1

<i>Russia</i>		<i>Ukraine</i>	
French	1	French	1
<i>Hungary</i>		<i>Sweden</i>	
French	1	French	4
		Italian	1
<i>Switzerland</i>		<i>U.S.A.</i>	
French	21	English	12
Italian	4	Italian	4
		French	1

The information contained in the letters has been summarised according to a pre-ordered indexing scheme, developed by the Authors:

Righi Correspondence Index Card

Progressive number:

Sender:

Place: [if known]

Letterhead:

Date: [incomplete-indecipherable-illegible- no date- assumed]

Recipient:

Address:

Language:

Letter (Illustrated Postcard - Note - Visiting Card - Telegram)
handwritten/typewritten

Number of sheets: [complete or incomplete]

Names mentioned in the letter:

Summary.

After the index cards had been prepared, with an extended summary of the letters making up the collection, the handwriting of unsigned letters was analysed. Among the letters received from Augusto Righi's 450 correspondents, only in 5 cases has the identity of the author remained unresolved (2 indecipherable signatures, 2 signatures in doubt and one unsigned letter).

A large part of the letters bearing no indication of the date have been dated on the basis of documentary evidence and a linking of the clues provided in the missives themselves, with the aid of a perpetual calendar.

A coordinated series of historical, bibliographic and archival studies were undertaken in order to trace the figures of many of Righi's correspondents. For the purpose of identifying the authors of the letters and determining their place within the historical-scientific, political and cultural context of the time or, in other cases, simply within the private sphere of A. Righi's life, biographical information was gathered about 434 correspondents and included in the Appendix of the volume "The Scientific Correspondence of Augusto Righi"(in print) entitled *The Correspondents of Augusto Righi*.

2. Marconi/Righi: a difficult relationship / discordant voices?

The impression one derives of Guglielmo Marconi from these letters may be described as the "other side of the medal", a "negative" picture as it were. However, this harsh image is softened by Augusto Righi's own explicit and repeated praise of Marconi.

The letters mentioned here are wholly reliable sources - in that they are authentic and have not been manipulated or falsified - and date from the same period as the events described; but they are all from "adversaries", who were not predisposed in Marconi's favour.

In any case, they explicitly and I would say vividly convey the mood of the protagonists, their anxieties and their hopes, all aspects normally neglected in historical reconstructions; the latter, unfortunately, are often rationalisations which, purportedly to achieve clarity and objectivity, leave out many elements that would provide a more human, and thus truer picture of many historical happenings.

In the letters presented here, the most important of which will be accompanied by a brief comment, we shall witness the polemics of Oliver Lodge (1851-1940) and Silvanus Thompson (1851-1916) against Guglielmo Marconi (1874 - 1937).

We shall gain insight into the hopes, successes, human conflicts and disappointments of Augusto Righi, who always revealed extraordinary modesty, honesty and moral uprightness in his judging of events. Sadly accustomed as we are to our own times - in which driven by malevolent or narrow interests, people repeatedly, habitually and with complete indifference disavow their initial affirmations - we may derive great comfort in reading the pages of someone like Augusto Righi, whose moral stature makes him akin to the great philosophers of the past; he always remained

faithful to his moral principles, though he had many grounds for advancing lucrative claims.

The reader may be surprised by the crudeness of some letters written to Augusto Righi by Marconi's adversaries. Yet it seems natural and understandable if we consider the importance of the development of Marconi's wireless telegraphy, the success it achieved - including financial success - the extraordinary fame to which the young protagonist rose in a short time and the honours awarded to him, including the Nobel Prize for Physics in 1909.

We should also bear in mind the undeniable fact that, at least initially, many of the specific elements he used in developing wireless telegraphy, including some of its fundamental components, had been conceived and acquired, albeit in a different cultural context, by other scientists. Polemics and conflicts of interest were thus inevitably bound to arise among the protagonists.

Nevertheless, despite the polemics and claims, whether founded or unfounded, it is our opinion that Guglielmo Marconi played a fundamental role in the invention and development of wireless telegraphy.

In fact, it was Marconi who had the idea and carried out pioneering experiments. What is more, he perfected all the technical features of the components and instruments he used, was awarded important international patents for his system and played a part in transforming the radiotelephony sector into nothing less than a commercial industry.

Guglielmo Marconi is therefore without a doubt the person who must be credited for having invented and developed wireless telegraphy.

That being said, we shall now describe some of the general and specific points deriving from our analysis of the letters received by Augusto Righi in reference to Guglielmo Marconi.

A first interesting insight furnished by the letters regards the early years, indeed the very first months of Guglielmo Marconi's stay in England. The correspondents who speak of Marconi - often with a certain degree of acrimony - are above all O. Lodge and S. Thompson.

Oliver Lodge thus wrote to Righi on 21 June 1897:

"Meanwhile I must tell you that your protégé Marconi has obtained the ear of the British Post office officials, some of whom are like him not well versed in Physics. A

vote of £ 600 has been made by Parliament for experiments, and I am told that his "invention" is going to be bought by a company for £ 16,000.

All this is very absurd, because there is absolutely nothing new in the whole thing. But then he had the sense to take out a patent, and that is a saleable commodity."¹

These words need no commenting.

Shortly thereafter Lodge reaffirmed his opinion about what should be done in a letter to Righi dated 24 July 1897.

"I think we have some chance of combatting Marconi's patent, but it may need a law-suit. ... It will be well for you to inform the continental public or government that the "discovery" is not new, as I have informed the English public by a letter to the Times ..."²

In a letter dated 31 January 1897, Silvanus Thompson from the Finsbury Technical College in London asked for information about Marconi's discovery in relation to Lodge's and Righi's own work:

"... It is of importance to me to have, without delay, the picture of your apparatus for the study of the electric waves of shortest wave-length...

Further, can you tell me who is this young M. Marconi, who has recently come to London with an apparatus for telegraphy by means of electric waves? I hear that he comes from Bologna. Is he one of your students? What is it that he has discovered, and in what way does his principle differ from that of the apparatus with which you, and Hertz, and Lodge have worked? ..."³

Oliver Lodge continued to closely monitor Marconi's moves and on 16 May 1901 he wrote, in reply to Righi:

"I would gladly send you information concerning Marconi's tuned system for discriminating between stations which has been announced without details and particulars pretty widely, especially by Professor Fleming, who however is a paid official or Consulting Engineer of the Marconi Company, but I have no knowledge of the details and I am rather sceptical on the subject. ..."⁴

¹ FRACXL, L69.

² FRACXL, L70.

³ FRACXL, T16.

⁴ FRACXL, L72.

Lodge says he has no information about Marconi's tuned system, but just one day later he utters a cry of victory.

"When I wrote to you yesterday I had not seen Marconi's latest specification N° 7777, 1900; accepted April 13, 1901.

I am telling a Patent Agent to send you a copy for your information.

You will see that it is as I thought my syntonic idea applied through a secondary coil however after the manner of Tesla."⁵

Lodge realised he had the Marconi Company in a corner; in fact, it would be forced to pay Lodge a large compensation and hire him as *Consulting Engineer*.

On 4 July 1901, Lodge again wrote to Righi, who had probably asked him to explain what advances had been made through Marconi's tuned system and if they were such as to earn him a medal.

"... I incline to think that this claim is correct. I also incline to think that Marconi's syntonization is a legitimate advance for which he is entitled to a medal.

He has certainly not copied anything that I had published in a complete and put-together manner; he has utilised various experiments in a legitimate way ..."⁶

Righi had probably sent a similar request for information to Silvanus Thompson. In Thompson's reply, which contains a violent attack on Marconi, we may gather that the subject of discussion, i.e. the medal to be awarded to Marconi, is the "Medaglia Matteucci" of the *Società Italiana per il Progresso delle Scienze: SIPS* (Italian Society for the Advancement of Science).

"As to the "invention" of Marconi, I shall indeed write something soon. He is sadly lacking in the courtesy of acknowledging his indebtedness to those from whom he has learned. I, for one, have never forgiven him for the mode in which he treated you. He learned from you of your researches on Hertz waves, and of your improvements of the oscillator and of the detector, and forthwith he comes over to England and patents them in his own name as his own invention, and at the same time he patents as his own the automatic tapping of the coherer, which is due to Lodge. He has since also patented as his own the "jigger" - i.e. the step-up transformer - as an adjunct to the coherer: - this also is an invention of Lodge. And now he claims as his own the telephonic method of reception which was worked out

in the R. Italian Navy, and is originally due, I learn, to the Semaforista Paolo Castelli. I marvel that a scientific body such as the Lincei should award a prize to such a charlatan - it ought to have been given to you.”⁷

In a letter dated 5 July 1902 Thompson reiterated his opinion, informing Righi that he had written letters to the “Saturday Review” expressing his views about Marconi.

“... Signor Marconi is furious with me; and has accused me publicly of “absolute and gratuitous untruth”. I have replied by simply stating facts and dates, and concluded by saying that the name of Castelli must now be put “beside those of Righi and of Lodge” as the real inventors of wireless signalling!”⁸

Thompson’s accusations were very serious and largely unjustified, as Augusto Righi was well aware; in fact, Righi himself undertook to make sure that Guglielmo Marconi received the prize of the Lincei Academy.

Though some pieces are missing and there are no letters of explanation or confirmation to serve as evidence, it must have been around this time that Righi developed the conviction that the role played by Marconi in wireless telegraphy was, after all, fundamental. The famous transoceanic transmissions (1901) may have had a part in bringing about Augusto Righi’s “change of mind”.

We might find evidence of the torments afflicting Augusto Righi’s soul if we had access to the originals of the letters he sent to Lodge, Thompson and others. As of yet, no such letters have been found and they will constitute the object of further investigations.

However, that Guglielmo Marconi’s behaviour had thrown Augusto Righi into a deeply troubled state of mind (at least during the period between 1896 and 1901) may be gathered from a letter written in French by the physicist Charles Edouard Guillaume, Secretary of the Organising Committee of the *Congrès International de Physique* (together with Lucien Poincaré), which was shortly to take place in Paris (6-12 August 1900).

Guillaume’s letter is dated 15 March 1900 and is written on letterhead paper of the International Congress. It contains a reference to a letter – not yet found – written by Righi on 9 March of the same year.

⁷ FRACXL, T17.

⁸ FRACXL, T18.

The passage in question confirms our belief that, at least in that period, Augusto Righi felt he had somehow been cheated by Guglielmo Marconi. This would explain the reason behind his intense exchange of letters with English scientists.

It was a brief period of bitterness for Augusto Righi. Soon he would regain his usual poise and his ability to detach himself from affairs he was personally involved in.

We are referring to the following passage, which is disconcerting in many respects.

“Une partie de votre lettre m’a vivement attristé. Mes collègues et moi, nous pensions, en effet, que M. Marconi avait tiré grand partie de vos admirables expériences pour faire fortune. Mais nous ne pensions pas qu’il eut été aussi indélicat. Votre lettre ne laisse plus subsister aucun doute dans notre esprit; il vous a volé le fruit de votre travail.”⁹ [*Literally: he has robbed you of the fruits of your labour.*]

Guillaume then continues by requesting Righi to make the contents of his letter of 9 March 1900 public at the Congress due to convene in Paris, though this important point clearly needs to be verified through other circumstantiated evidence.

For the time being we may point out one interesting aspect.

In his official presentation before the Congress of Physics in Paris in 1900, Righi sought to establish a proper balance between the achievements attributable to several of Guglielmo Marconi’s precursors and the decisive role played by Marconi himself.

Righi mentions, in fact, various scientists:

“Le professeur R. Threlfall est le premier, à ce qu’il paraît, qui ait proposé (en 1890) cette application des expériences de Hertz; mais c’est certainement Sir William Crookes qui a montré la voie à suivre pour arriver à des résultats vraiment pratiques et soit arrivé jusqu’à indiquer l’utilité de l’emploi du récepteur Morse, et à discuter les avantages et les défauts inhérents à un tel système de télégraphie. Presque en même temps, M. Tesla, l’inventeur bien connu, proposait de transmettre des oscillations électriques à distance au moyen de deux antennes verticales, terminées par de larges conducteurs et placées à deux stations éloignées. Un peu plus tard, le professeur Rathenau, en décrivant ses expériences de télégraphie sans fil, faites en 1894, suggéra de son côté comme une possibilité de l’avenir l’emploi des ondes électromagnétiques dans un but semblable. L’étude des décharges atmosphériques fit entrer la question dans sa phase expérimentale. En effet, divers physiciens, surtout M. Popoff, établirent des appareils destinés à l’étude ou à l’enregistrement de ces décharges, et ces appareils,

⁹ FRACXL, G37.

qui comprenaient dans leur constitution une longue antenne et un indicateur d'ondes, étaient plus ou moins semblables aux appareils récepteurs de la télégraphie sans fil actuelle. M. Popoff exprima même la certitude de pouvoir employer son appareil à la transmission de signaux, dès que l'on aurait découvert un appareil générateur d'ondes assez puissant.

Pendant ce temps, le professeur Lodge obtenait, grâce à son *coherer*, la transmission de signaux à des distances assez grandes, et M. Rutherford, avec son indicateur magnétique, arrivait à des distances de centaines de mètres.

Mais c'est le jeune inventeur italien M. Marconi qui, le premier, indépendamment de ses devanciers, et lorsque ces essais étaient encore presque ignorés, a su réaliser un système complet de télégraphie par ondes hertziennes, et le faire fonctionner pour des distances de dizaines de kilomètres, après avoir vaincu de nombreuses difficultés pratiques au moyen de dispositions très ingénieuses.¹⁰

Starting from 1900, as we have seen, Righi seemingly underwent a radical and abrupt change of mind. We may venture a historical hypothesis to justify this change. We may suppose, as a possible explanation, that Marconi's increasingly successful experiments over longer and longer distances had a decisive impact on Righi. They were shortly to be followed by a great, extraordinary event: the event we are talking about is the famous transatlantic transmission between Poldhu, Cornwall and Signal Hill in Saint John's, Newfoundland at the end of 1901.

No one could have understood better than Righi that in order to successfully transmit electromagnetic signals over distances exceeding thousands of kilometres, Marconi must have overcome enormous difficulties.

These happenings may have led Righi – in his own personal journey to Damascus – to convert to Marconi's conceptions.

We believe these episodes led Augusto Righi to realise that the person he considered but a "boy", his young "pupil", had truly made giant steps and that what he himself may have suggested or taught in actual fact counted very little.

Among other things, Righi was well acquainted with the most famous of the Poincarés, Jules-Henri, and knew about the physical and mathematical doubts this great mathematician had expressed with regard to the feasibility of the transatlantic experiment.

One fact is certain, which is that the cultural mission pursued by the two great Bolognese scientists, though apparently closely connected, were in actual fact very remote from each other.

Augusto Righi's objectives and research endeavours were completely different from Marconi's.

Following in the footsteps of Hertz, Righi aimed to confirm the great mathematical system underlying the electromagnetic theory of James Clerk Maxwell (1831-1879). In particular he wished to prove beyond a shadow of doubt that Maxwell's electromagnetic theory of light was correct. In Righi's view, after Hertz little had been done to confirm this great theory, which was opposed, among others, by Lord Kelvin and Pierre Duhem. Evidence to support this interpretation may be found in the following quote:

"It is easy, however, to explain why little progress has been made in this direction up to now. The minimum wavelength obtained by Hertz and his successors was approximately 66 centimetres. A wavelength of this dimension would require us to use extremely large apparatuses to prevent phenomena of diffraction, which would mask many phenomena analogous to those normally produced by light waves.

In order to come closer to demonstrating the aforesaid analogy, we needed first of all to create apparatuses with which we could generate and study electric radiation with a much shorter wavelength than 66 cm and my first efforts focused on this objective. Fortunately they allowed me to achieve my purpose and I was able to experiment with wavelengths of only a few centimetres (even as short as about two and a half centimetres).

Once I was in possession of this equipment, which also has other special advantages, I conducted a series of experiments, which served to demonstrate the perfect analogy between electric and light waves."¹¹

The context Righi moved and worked in is thus very clear. Whatever Righi's own motivations and ideas may have been, those instruments and experiments influenced Marconi's creativity, stimulating him to continue the tests he had already begun. Righi attempted to generate shorter and shorter electromagnetic waves as he wished to verify the laws of optics for electromagnetic radiation through laboratory experiments, both to confirm a general theory and for teaching purposes. In this manner he discovered microwave optics and confirmed Maxwell's theory.

¹⁰ A. RIGHI, *Les ondes hertziennes*, in "Rapports présentés au Congrès International de Physique", edited by C.É. GUILLAUME - L. POINCARÉ, Tome II, Gauthier-Villars, Paris, 1900; cit. pp. 319-320.

¹¹ A. RIGHI, *Sulle oscillazioni elettriche a piccola lunghezza d'onda e sul loro impiego nella produzione di fenomeni analoghi ai principali fenomeni dell'ottica*, in "Memorie della R. Accademia delle Scienze dell'Istituto di Bologna", Serie V, Tomo IV, Gamberini e Parmeggiani, Bologna, 1894; cit. pp. 487-488.

Marconi headed in a completely opposite direction; he worked to generate radiation of longer wavelengths in order to transmit signals over large distances and beyond natural obstacles. His pursuits enabled him to create and develop wireless telegraphy.

The objectives, research projects and scientific framework of reference thus differed significantly.

However, even if we acknowledge the different roles played by these two scientists and their research, we need not rule out the possibility that Marconi may have derived precious suggestions from Righi's experimental activities.

3. Corbino/Righi: a relationship between pupil and mentor

Orso Mario Corbino (1876-1937), a talented physicist and farsighted scientific organiser, may be credited, among other things, with bringing together 'Il gruppo di Via Panisperna' in Rome under the guidance of Enrico Fermi (1901-1954).

About forty letters written by O. Mario Corbino are preserved in the collection of Righi's correspondence.

Among the most important, we may mention a letter dated 24 May 1896 (C99), in which Corbino thus expresses himself: "...I shall take this occasion to submit another request to you. I expect to graduate in July of this year. However, I do not wish to leave the University, both because I think I am too young to start teaching, having just turned twenty, and because I still feel a strong yearning to complete those notions ..." And a little further down: "...I would like to ask you if I might find an occupation in Bologna, either in your laboratory or elsewhere, which would provide me with a modest but secure income and enable me to work with profit under your guidance".

In letter C100 of May 1899, Corbino reaffirmed his high regard for Righi: "...I am almost accustomed to considering myself as more or less a platonic pupil of yours".

Years later, Corbino's friendship and esteem remained intact. In a letter of 1909 (C103) we may read, in fact: "Indeed, I shall exploit this circumstance to ask you ...a favour, which is to send me a few available copies of any of your publications of which you have a large number of exemplars. In the disaster in Messina, I lost all my publications as well as those I had received as gifts, since I kept them at the University... Among them were those I had received from you, from which I can affirm to have learnt physics and of which many traces can be found in my work".

The collection includes other interesting correspondence between Corbino e Righi, in particular the letters in which Corbino, by now a university professor and famous politician, attempts, without success, to favour Augusto Righi's nomination for a Nobel Prize.

We may briefly summarise some of the significant elements revealed by these letters, laying emphasis on the following points:

- Corbino would have liked to work in Augusto Righi's laboratory
- He describes himself as a "platonian" pupil of Righi
- He explicitly states that he conducted his own research drawing inspiration from Augusto Righi
- He systematically campaigned to get Righi the Nobel Prize
- He considered him "The greatest physicist Italy has had since Volta"¹²

The brief conclusion we can derive is:

- What better proof could there be for affirming the existence of a continuous transmission of knowledge between A. Righi/O.M. Corbino/E. Fermi?

Corbino "took up the baton" from Righi and passed it on to Enrico Fermi.

4. Levi-Civita/Righi: a relationship between "mentor" and "pupil"

Tullio Levi-Civita (1873-1941) was a mathematician of high calibre, also known for the great influence that his contributions and those of his mentor, Gregorio Ricci Curbastro, exercised on Albert Einstein.

The collaboration between T. Levi-Civita and Righi was above all of a technical nature, in that Augusto Righi turned to him repeatedly for mathematical calculations. However, other more personal aspects also emerge, shedding light on T. Levi-Civita's character and his collaboration with Righi.

Let us take a look at some of the letters sent to Righi; the letters preserved total about thirty in all.

The first we shall take into consideration was written on 12 October 1901 (L27). Levi-Civita had recently been awarded the chair of rational mechanics at the University of Padua (1898) at the age of 25.

The letter was written in reply to the "...question you kindly suggested to me". It was a question regarding the characteristics of motion along the z axis of an ion, at a constant velocity c, in relation to an indefinite conducting plane, located in x=d, assuming that the medium considered was ether. Levi-Civita broadly treated the problem on the basis of the Maxwell-Hertz¹³ equations.

¹² O.M. Corbino, "Commemorazione del Socio Augusto Righi", "Atti della R. Accademia Nazionale dei Lincei", Anno 318 (1921), Serie V, Rendiconti, pp. 215-221; cit. p. 215.

¹³ A topic A. Righi had already focused on in February 1901: "Sui campi elettromagnetici e particolarmente su quelli creati da cariche elettriche o da poli magnetici in movimento", "Memorie della R. Accademia delle Scienze dell'Istituto di Bologna", Serie V, Tomo IX, 1901, pp. 151-176.

It is interesting to note how, in the course of their correspondence, Righi carefully scrutinised Levi-Civita's technical notes; on several occasions he discovered calculations or signs that were wrong and promptly pointed out the mistakes to Levi-Civita.

Another letter of particular interest from a more human standpoint is the one written on 11 February 1920 (L46), which consists in a sort of candid confession made by Levi-Civita to Righi:

"Once again you show such affectionate benevolence toward me that it leaves me quite confused. First of all, I am very grateful to you for having thought of me for an upcoming meeting of the Solvay Institute, in the likelihood of the Executive Committee's including relativity among the topics on the agenda; and I am flattered both by your amiable request and the prospect of being invited to Brussels. However, at the same time I feel compelled – not out of false modesty, which would be incongruous with the cordiality and spontaneity of your initiative, but out of respect for you and for myself – to ask you to keep in mind: 1. That (even with assiduous preparation) I would not be capable of putting together a presentation suited to the context, with fairly broad, or perhaps unilateral arguments, but not too arid, 2. That I am not a fluent speaker, nor do I have an aptitude for rapidly outlining an idea, or presenting it with clarity, as would indeed suffice in a scientific debate.

With these reservations and with sincere gratitude in any case for the honour you have done me, I leave it entirely up to you, and your acute sense of responsibility, to decide whether it is appropriate to carry out your courteous proposal ...".

In other letters Levi-Civita shows diplomatic caution towards Righi's research on magnetic radiation or his criticisms of the Michelson-Morley experiment.

With respect to Tullio Levi-Civita, we may venture the following considerations:

- Now and again he was the specific consultant, for questions regarding mathematics, of a highly attentive "pupil" (A. Righi), who corrected his calculations on various occasions

- A means for gaining insight into some aspects of Levi-Civita's personality

- A key to understanding T. Levi-Civita's embarrassment toward some aspects of Righi's research, which he may not have agreed with:

- Magnetic radiation,

- Criticism of the Michelson-Morley experiment.

5. A brief concluding note

We hope that **the** above selection of letters **taken from** the "The Scientific Correspondance **of** Augusto Righi", due to come **out** shortly, as well as the **topics** they concern may serve both to stimulate **our** readers' curiosity and interest **and** acquaint **them** with our research efforts.