Kaleidoscope
Művelődés-, Tudomány- és Orvostörténeti Folyóirat
Journal of History of Culture, Science and Medicine
2015. Vol.6.No.11.
ISSN/EISSN: 20622597
DOI: 10.17107/KH.2015.11.325-329

Correspondence of mathematicians II.

The Riesz brothers's correspondence

Levelezés matematikusokkal II.

A Riesz testvérek levelezése

Szabó Péter Gábor PhD
Szegedi Tudományegyetem, Számítógépes Optimalizálás Tanszék
pszabo@inf.u-szeged.hu

Initially submitted October 10, 2015; accepted for publication november10, 2015

Abstract:
The Riesz brothers, Frigyes Riesz (1880-1956) and Marcel Riesz (1886-1969) were world famous mathematicians in the 20th century. They were not only excellent scholars, but also founders of mathematical schools. Frigyes Riesz taught at universities in Hungary (Kolozsvár, Szeged and Budapest), and Marcel Riesz at universities in Sweden (Stockholm and Lund). Marcel Riesz's academic legacy is in the Department of Mathematics at the University of Lund. László Filep (1941-2004), a Hungarian historian of mathematics, put this legacy in order in 2003. He planned to publish the Riesz brothers's correspondence in a book, but unfortunately Filep died a year later. In our project we carry on with his work at the Institute for the History of Hungarian Sciences.[1]

Keywords: History of Mathematics in Hungary and Sweden, 20th century, correspondence with mathematicians

Kulcsszavak: matematika története Magyarországon és Svédországban, 20. század, levelezés matematikusokkal

1. Introduction

The Riesz brothers, Frigyes Riesz (1880-1956) and Marcel Riesz (1886-1969) were two remarkable mathematicians of the 20th century. Frigyes Riesz was one of the founders of functional analysis; the famous Riesz-Fischer theorem is familiar to every mathematician. Marcel Riesz's main research topic was also mathematical analysis, and he founded a Swedish mathematical school devoted

[1] This project was supported by the Grant OTKA K 67652.

2015. Vol.6.No.11.
ISSN/EISSN: 20622597
DOI: 10.17107/KH.2015.11.325-329

to the theory of partial differential equations. The Riesz brothers's collected academic works were published in separate volumes [5,6]. Though their results,
they are known as mathematical school-founding academics; Frigyes Riesz in Szeged and Marcel Riesz in Lund.

Figure 1: The Riesz brothers, Frigyes Riesz and Marcel Riesz.

In 2002, Ilona Riesz, the granddaughter of Marcel Riesz, gave the academic legacy of Marcel Riesz to the Department of Mathematics at the University of Lund. When the legacy arrived, it was a rather disorderly array in old suitcases and cardboard boxes. In 2003, Jaak Peetre, a mathematics professor emeritus at the University of Lund, asked the Hungarian historian of mathematics László Filep (1941-2004) to organise the collection.

Filep travelled to Lund and worked with enormous energy and great enthusiasm, and finished the work in July 2003. Now, the Marcel Riesz legacy is in 45 cardboard boxes. During his time in Sweden, Filep examined the letters of Hungarian mathematicians, and realised that probably the most interesting correspondence in the legacy was that between the two Riesz brothers. He examined the boxes that contained them, and brought them with him to Hungary. Filep planned to work on these documents, and to publish a book about the most important letters from a historical and mathematical point of view. He wrote an article in Hungarian entitled ”Extracts from the correspondence between Frigyes Riesz and Marcel Riesz” [3]. In Hungary, he found a number of letters that Marcel Riesz wrote to Frigyes Riesz as well. Later he published another short paper based on this legacy on the correspondence between John von Neumann and the Riesz brothers [4].
Unfortunately, László Filep – during one of his lectures in Budapest – died in November 2004. His widow asked the Institute for the History of Hungarian Sciences to write the book which Filep had planned to do himself. In our project we finished this work.

2015. Vol.6.No.11.
ISSN/EISSN: 20622597
DOI: 10.17107/KH.2015.11.325-329

2. Marcel Riesz's archive in Lund

Marcel Riesz's academic legacy is quite interesting from a history of mathematics point of view. In our work we focused mainly on the Hungarian correspondence, but we should mention that Jaak Peetre is worked on the Swedish correspondence side.

Figure 2: The 45 boxes of the Marcel Riesz legacy.

Marcel Riesz kept in contact with many Hungarian mathematicians. In his legacy we can find letters by the following mathematicians: János Aczél, Mihály Bauer, Manó Beke, Ákos Császár, Pál Dienes, Paul Erdős, Lipót Fejér, Mihály Fekete, Károly Goldziher, János Horváth, József Jelitai, László Kalmár, Béla Kerékjártó, Dénes Kőnig, József Kürschák, John von Neumann, György Pólya, Tibor Radó, Pál Sárközy, Lajos Schlesinger, Ottó Steinfeld, Ottó Szász, Gábor Szegő, Károly Szilárd, Béla Szőkefalvi-Nagy, Pál Turán, and Pál Veress.

The legacy not only includes the correspondence between Hungarian and Swedish mathematicians, but also the letters of other mathematicians such as Hardy. The letters between Riesz family members make interesting reading; Marcel Riesz's correspondence with his parents, with his brother Sándor, and with his sister Margit.

But the Riesz's archive doesn't just include letters. There are many other mathematical documents, official documents, manuscripts, newspapers, and photos as well. Unfortunately, several photos are without any legends, so sometimes we can only speculate who the people in the photos are. For example, we found a picture, in which we think we can see Hardy. It would be interesting if the man really is Hardy, because Hardy didn't like it much if someone took a picture of him. This is why there are relatively few photos of Hardy in existence. Marcel Riesz and Hardy once co-authored a book about the Dirichlet series [2], and they were

2015. Vol.6.No.11.
ISSN/EISSN: 20622597
DOI: 10.17107/KH.2015.11.325-329

also in a correspondence [1] for a time. Hence the Marcel Riesz legacy might well contain photoes of the English mathematician (see Figure 3).

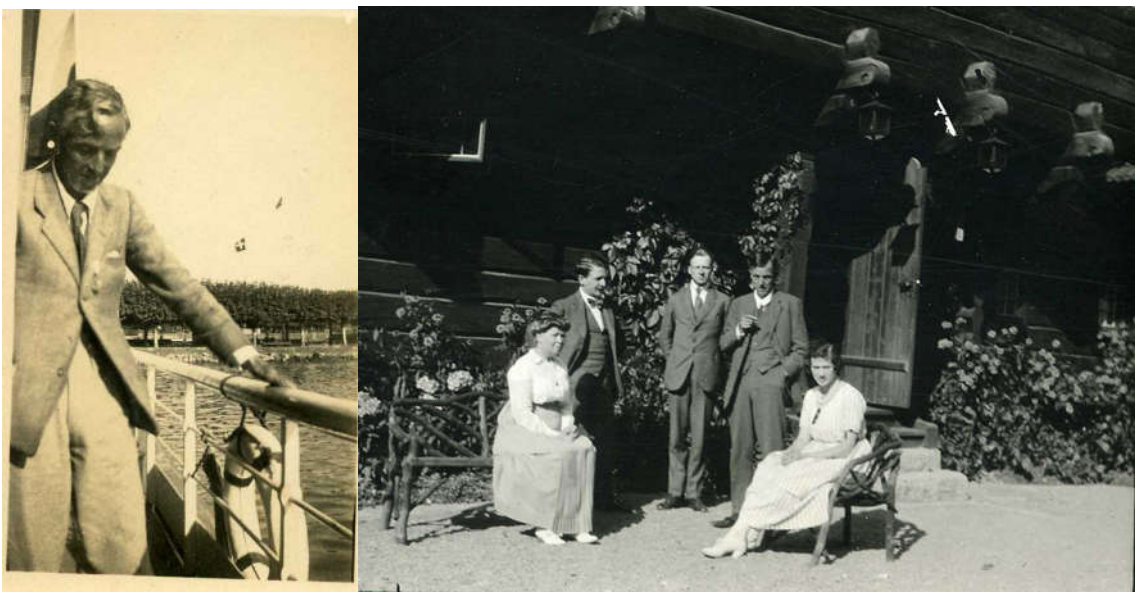

Figure 3: Mystery pictures from the MR archive. Is this the English academic G.H. Hardy?

3. The Riesz brothers's correspondence

We summarised the findigs of our research in two separate volumes [7,8]. The first book is on the mathematicians Riesz brothers's correspondences between ourselfes, and another book on the letters between the Riesz brothers and Lipót Fejér and fifteen other Hungarian originated mathematicians (Mihály Bauer, Manó Beke, Jenő Egerváry, Mihály Fekete, Géza Grünwald, László Kalmár, Béla Kerékjártó, John von Neumann, Gyula Pál, György Pólya, Tibor Radó, Alfréd Rényi, Gábor Szegő, Béla Szőkefalvi-Nagy, Pál Turán). We translated the foreign letters (in English, German, and French), and based on new sources we wrote introductions and analysis to the collected 450 letters from Hungarian and foreign archives and we wrote one thousand notes to the letters. We presented some first published valuable coloured and blank-and-white photos too. Over the mathematicians's legacies (Marcel Riesz's archive in Lund and Frigyes Riesz and Lipót Fejér's archives in Budapest) we studied the historian of mathematician László Filep's legacy and the mathematics teacher Béláné Szigeti's legacy too. Based on these legacies we also published important related documents (biography, official report, contemporary article in daily newspaper, mathematical paper, etc.). The found and published records reached our knowledge with several new information on the mathematician Riesz brothers.

References

[1] Cartwright, M. L. Manuscripts of Hardy, Littlewood, Marcel Riesz and Titchmarsh, *Bull. London Math. Soc.* 14 (1982), 472-532. http://dx.doi.org/10.1112/blms/14.6.472

2015. Vol.6.No.11.
ISSN/EISSN: 20622597
DOI: 10.17107/KH.2015.11.325-329

[2] Hardy, G. H., Riesz, M. *The general theory of Dirichlet series.* Cambridge Tracts in Mathematics 18. Cambridge, Cambridge University Press, 1915.
[3] Filep, L. Szemelvények Riesz Frigyesnek Riesz Marcellhez írott leveleiből, *Műszaki Szemle. Historia Scientiarum 1*, 27 (2004), 26-38.
[4] Filep, L. Neumann János és a Riesz testvérek, *Természet Világa Neumann-emlékszám*, 2003, p. 80.
[5] *Riesz Frigyes összegyűjtött munkái I-II.* A Magyar Tudományos Akadémia megbízásából sajtó alá rendezte Császár Ákos, Akadémiai Kiadó, Budapest, 1960.
[6] Riesz, M., *Collected Papers*, (Edited by Lars Garding and Lars Hörmander), Springer-Verlag, Berlin, Heidelberg, 1988.
[7] Szabó, P. G., *A matematikus Riesz testvérek*, Magyar Tudománytörténeti Intézet, Bp., 2010.
[8] Szabó, P. G., *Kiváló tisztelettel*, Magyar Tudománytörténeti Intézet, Bp. 2011.