Kaleidoscope
Művelődés-, Tudomány- és Orvostörténeti Folyóirat 2013. Vol.4.No.7.
Journal of History of Culture, Science and Medicine ISSN/EISSN: 20622597
DOI: 10.17107/KH.2013.7.174-178

Correspondence of mathematicians I.
László Kalmár's correspondence with Hungarian mathematicians

Levelezés matematikusokkal I.
Kalmár László levelezése magyar matematikusokkal

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Initially submitted May 10, 2013; accepted for publication July15, 2013

Abstract:
László Kalmár (1905-1976) was the leader of Hungarian mathematical logic at the University of Szeged. He was an excellent mathematician and one of the best-known pioneers of Computer Science in Hungary. Kalmár's scientific legacy is an important source of the History of Mathematics and the History of Computer Science. In his working career he had over 700 corresponding partners, mathematicians, and other scientists among them. In our project, we published two books based on Kalmár's legacy. We examined László Kalmár's correspondence with 24 Hungarian mathematicians: with János Aczél, Lajos Dávid, Paul Erdős, Lipót Fejér, István Fenyő, Géza Grünwald, Béla Gyires, György Hajós, John von Neumann, Andor Kertész, Dénes Kőnig, Imre Lakatos, Dezső Lázár, Tibor Radó, László Rédei, Alfréd Rényi, Frigyes Riesz, János Surányi, Tibor Szele, Barna Szénássy, Béla Szőkefalvi-Nagy, Pál Turán, Tamás Varga, and István Vincze. The books contain more than 500 letters with 1000 comments and many other documents, photos, and biographical data.

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

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

1. Introduction

László Kalmár (1905-1976) created enduring more areas of mathematics and found outstanding results in Mathematical Logic. He was an excellent professor of mathematics at the University of Szeged, and became the leader of Hungarian mathematical logic. Kalmár was involved in Cybernetics as well, and promoted the development of Computer Science in Hungary. In the autumn of 1957, he began teaching computer programming at the University of Szeged, and he developed a logical machine in the following year. Kalmár is one of the best-known pioneers of Computer Science in Hungary. In 1997, one of the world's largest organizations of computer technology, the IEEE Computer Society, posthumously awarded him the Computer Pioneer Award.

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2. Kalmár's archive

László Kalmár's scientific legacy is in the University Library of the University of Szeged in southern Hungary. Kalmár's archives consists of many interesting documents, manuscripts and letters, and it is a good source for research into the Hungarian History of Mathematics and History of Computer Science. Kalmár in his lifetime had more than 700 corresponding partners, numerous Hungarian and non-Hungarian mathematicians, and other scientists. In our project, we examined the Kalmár's archive and published his correspondence with 24 Hungarian mathematicians. There is a lot of interesting mathematical and historical information contained in these letters. Rózsa Péter wrote in one of her articles [2] that these letters could be one of the "main-sources" for someone who wants to study the History of Mathematics in the 20th century in Hungary. KALMÁRIUM I and II [3, 4] contain over 500 letters of correspondence with scientists with around 1000 comments. We first published lots of photos, biographies, and manuscripts. In addition, the books contain two Kalmár-interviews.

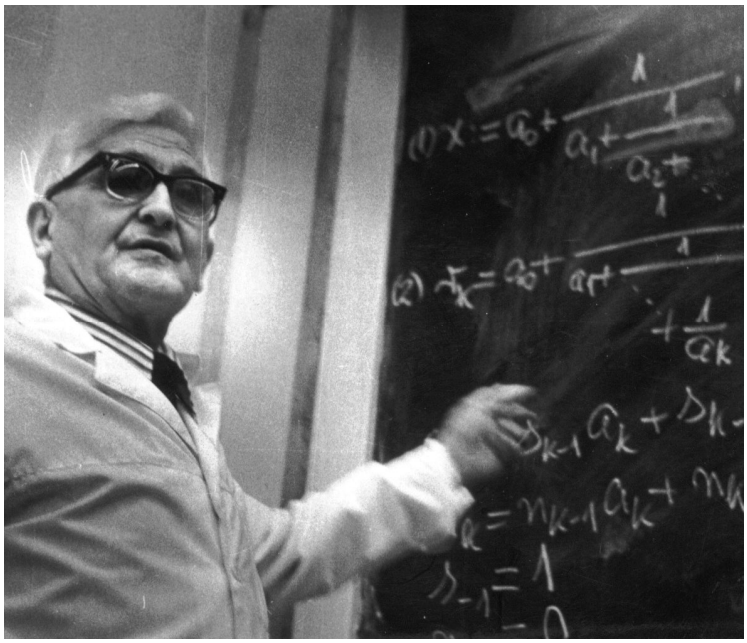

Figure 1: László Kalmár

2.1. KALMÁRIUM I.

The first volume of KALMÁRIUM was published for the 100th anniversary of the birth of László Kalmár in 2005. There are four autobiographies of Kalmár in this book written in 1939, 1951, 1966, and 1976, in the last year of his life. The corresponding partners in

KALMÁRIUM I are the following Hungarian mathematicians:

Lajos Dávid (1881-1962), Bolyai-researcher, professor of mathematics in Debrecen and Kolozsvár, *Paul Erdős* (1913-1996), member of the Hungarian Academy of Sciences, he published the most scientific articles in his lifetime in mathematics, *Lipót Fejér* (1880-1959), member of the Hungarian Academy of Sciences, the founder of the first Hungarian mathematical school in Budapest, *Géza Grünwald* (1910-1942), a mathematician who died in the second world war, *Andor Kertész* (1929-1974), algebra professor at the University of Debrecen, *Dénes Kőnig* (1884-1944), he wrote the first monograph in Graph Theory, *László Rédei* (1900-1980), member of the Hungarian Academy of Sciences, founder of the abstract algebra school in Hungary, *Alfréd Rényi* (1921-1970), member of the

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Hungarian Academy of Sciences, the founder of the Probability Theory school in Hungary, *Frigyes Riesz* (1880-1956), member of the Hungarian Academy of Sciences, one of the founders of Functional Analysis, *Tibor Szele* (1918-1955), algebra professor in Debrecen who died young, *Pál Turán* (1910-1976), member of the Hungarian Academy of Sciences a world-famous researcher of Analysis and Number Theory, *Tamás Varga* (1919-1987), a well-known researcher of the education of mathematics.

Paul Erdős wrote more than 1500 mathematical articles in his lifetime. Kalmár helped him when he was writing his first paper on new proof of Tchebycheff 's theorem. At that time, Erdős was 18 years old, and he was a student at the University of Budapest. Erdős wrote the following in his reminiscences [1]:

"In March, 1931 I found my proof for the known theorem of Tchebycheff in the case of every n > 1, there must be a prime between n and 2n. My proof was hard to understand because of my inaccurate drafting. My badly and roughly drafted manuscript was given to Kalmár who spared no pains to make my proof clear and to formulate the unexpressed lemmas… During the period, between 1931 and 1934 I used to the theorem of primes and with the primes found in an arithmetic progression. My dissertation, which was drawn and written in a comprehensible way by Kalmár, also deals with these."
Later they kept in contact by mail. In the Kalmár's archive there are 21 letters by Paul Erdős.

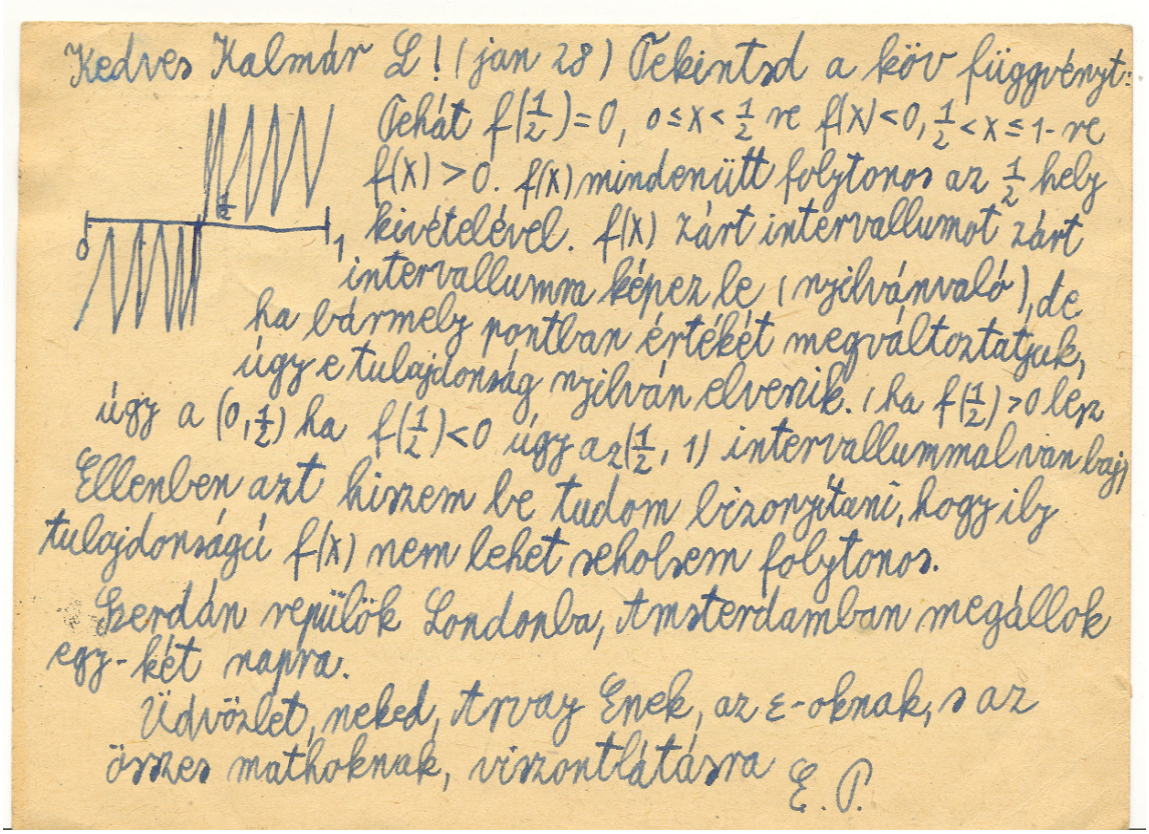
Kedves Kalmár L! (jan 28) Tekintsd a köv függvényt:
Tehát $f(\frac{1}{2})=0$, $0\le x<\frac{1}{2}$ re $f(x)<0$, $\frac{1}{2}<x\le 1$-re
$f(x)>0$. $f(x)$ mindenütt folytonos az $\frac{1}{2}$ hely
kivételével. $f(x)$ zárt intervallumot zárt
intervallumra képez le (nyilvánvaló), de
ha bármely pontban értékét megváltoztatjuk,
úgy e tulajdonság nyilván elvesik. (ha $f(\frac{1}{2})>0$ lép
úgy a $(0,\frac{1}{2})$ ha $f(\frac{1}{2})<0$ úgy a $(\frac{1}{2},1)$ intervallummal van baj
Ellenben azt hiszem be tudom bizonyítani, hogy ily
tulajdonságú $f(x)$ nem lehet sehol sem folytonos.
Szerdán repülök Londonba, Amsterdamban megállok
egy-két napra.
Üdvözlet neked, Irray Enek, az ε-oknak, s az
összes mathoknak, viszontlátásra E. P.

Figure 2: A typical postcard by Paul Erdős (1949).
"Dear L. Kalmár! Let us consider the following function..."

2.2. KALMÁRIUM II.

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The second volume of KALMÁRIUM contains eleven articles on Kalmár's life and works written by his colleagues, students, and friends. The reader can find an interview with Kalmár, amusing selected notes from his approximately 150 notebooks, and a collection of short stories and anecdotes about Kalmár. The main part of this book is the correspondence of Hungarian (or of Hungarian origin) mathematicians with Kalmár. These mathematicians are the following:

János Aczél (1924-), foreign member of Hungarian Academy of Sciences, a professor of the University of Waterloo, *István Fenyő* (1917-1987), professor of Budapest University of Technology, *Béla Gyires* (1909-2001), member of the Hungarian Academy of Sciences, a professor in Debrecen, *György Hajós* (1912-1972), member of the Hungarian Academy of Sciences, a professor of Eötvös Loránd University, *Imre Lakatos* (1922-1974), world-famous researcher of mathematical philosophy in London, *Dezső Lázár* (1913-1942), a young mathematician who died in the second world war, *John von Neumann* (1903-1957), a genius of mathematics of 20th century, *Tibor Radó* (1895-1965), professor of Ohio State University in Columbus, *János Surányi* (1918-2006), professor of Eötvös Loránd University, *Barna Szénássy* (1913-1995), historian of mathematics, professor in Debrecen, *Béla Szőkefalvi-Nagy* (1913-1998), member of the Hungarian Academy of Sciences, professor in Szeged, *István Vincze* (1912-1999), professor of Eötvös Loránd University.

John von Neumann's early work in mathematical logic had a big influence on Kalmár. They knew each other personally, and in a von Neumann letter to Kalmár, KALMÁRIUM II contains the job recommendation that John von Neumann sent to him in 1946. This text is a recommendation for a professor status at the University of Szeged.

"To Whom it may concern:-
I have known Doctor L. Kalmár since about 1930, and I am familiar with his mathematical work, in particular, in formal logics; his work in that field is very close to my own interests. I consider him an absolutely first-rate man and his contribution to logics in particular, important. His work on the subject of "freedom from contradiction" and on the "Entscheidungsproblem" is most interesting and significant. I hope that he will have an opportunity to conduct his scientific work under favorable conditions. I also know that he is an enthusiastic and excellent teacher and that he is most eminently qualified to fill a University Chair. I can recommend him most wholeheartedly for any academic position in mathematics.

John von Neumann
Professor of Mathematics
Institute for Advanced Study
Princeton, New Jersey
U.S.A."

KALMÁRIUM contains 565 letters between Kalmár and several Hungarian mathematicians. We thought this work might be a useful source for historians of mathematics and academic researchers.

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