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W. Doeblin and B. Hostinský

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Abstract. — We present the letters sent by Wolfgang Doeblin to Bohuslav Hostinský between 1936 and 1938. They concern some aspects of the general theory of Markov chains and the solutions of the Chapman-Kolmogorov equation that Doeblin was then establishing for his PhD thesis.

Résumé (La correspondance entre Wolfgang Doeblin et Bohuslav Hostinský)
Nous présentons les lettres envoyées par Wolfgang Doeblin à Bohuslav Hostinský entre 1936 et 1938. Elles présentent des aspects de la théorie générale des chaînes de Markov que Doeblin mettait en forme pour sa thèse ainsi que des considérations sur la résolution de l'équation de Chapman-Kolmogorov.

Action must always be the daughter of rigor
before being the sister of dream
G. Canguilhem

("Avant d'être la sœur du rêve,
l'action doit être fille de la rigueur"
[Canguilhem 1996, p. 32])

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INTRODUCTION

On June 17th, 1936, Maurice Fréchet (1878–1973), one of the most prominent representatives of the French mathematical school as well as a creator of the modern school of probability calculus, wrote to his colleague and friend Bohuslav Hostinský (1884–1951), Professor of Theoretical Physics at Brno University in Czechoslovakia:

"I have a new pupil named Döblin who is studying probabilities in chains and will soon publish in the Comptes-Rendus [1] some results that I feel are interesting. He has much extended the results for the $p_{i,k}^{(n)}$ obtained by M. Hadamard at the Bologna conference and those of Romanovsky in his last memoir in the *Acta*." [2]

Since the beginning of the 1990s, there has been a resurgence of interest in Wolfgang Doeblin (1915–1940), an amazing and engaging character, and above all in his magnificent mathematical achievements. With 13 papers and 13 notes to the *Comptes rendus*, he succeeded in giving new ideas to deal with the theory of Markov chains and stochastic processes, ideas which were to bear fruit for years and are still today fundamental in probability theory. The solemn opening of a fourteenth publication, sent as a sealed letter [3] to the Academy in 1940 while Doeblin was in the Army, allowed the addition of more wonderful pages to this fertile work.

The following paper is a general presentation of ten letters from Doeblin to Hostinský that we have found in Brno. As a collaboration between the *Revue d'histoire des mathématiques* and the *Electronic Journal for History of Probability and Statistics* (EJHPS), [4] the paper is completed with the integral

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[1] Comptes-Rendus stands here for *Comptes rendus hebdomadaires de l'Académie des sciences de Paris.*

[2] J'ai un nouvel élève Döblin s'occupant des probabilités en chaîne et qui publiera bientôt aux Comptes-Rendus des résultats que je crois intéresants. Il a beaucoup étendu les résultats pour les transitions obtenues par M. Hadamard à la conférence de Bologne et ceux de Romanovsky dans son dernier mémoire des *Acta*." The correspondence between M. Fréchet and B. Hostinský may be found in the archive department of Masaryk University, Brno for Fréchet's letters and the archive department of Paris Academy of Science for Hostinský's letters (fonds Fréchet, box F8).

[3] In French *pli cacheté*. This is the name for a paper, sent by the author to the Academy for registration, when for any reason he does not want to or cannot propose it for publication. The letter is not opened until the author, or his heirs claim it to be, or after a period of a hundred years. During German occupation of France for example, this procedure was used by scientists condemned to silence for racial or political reasons.

[4] http://www.jehps.net

publication of the ten letters in the *Traces and Documents* section of the volume 3, n° 1, June 2007 of the EJHPS. The numbering of the letters mentioned hereafter is that of this publication in the EJHPS.

Letters from Doeblin to Hostinský are interesting above all as they are a first-hand document on the very beginning of the international career of the young mathematician. They are kept at the Archive department of Masaryk University, Brno, in the boxes *correspondence with foreign scientists* of the Hostinský fund.

1. WOLFGANG DOEBLIN

Before briefly tracing the life of the young mathematician, it is necessary to comment on the transcription of his patronymic. We indeed had the unusual choice between three possible names. When he became a French citizen in 1938, Wolfgang chose the official name of Vincent Doblin: it is under this name that he would receive his military distinctions, and it is the name which was carried afterwards by his younger brother Claude, who died in Nice in December 2005 and who made the decision to allow the publication of his brother's last memoir [Doeblin 2000]. Whereas his name at birth was Döblin, Wolfgang had chosen to spell it as *Doeblin* to simplify pronunciation in French. It is under this spelling that all his mathematical papers were signed and that he signed all his professional letters as well. This is the reason that we also adopt this spelling in the sequel.

On Wolfgang Doeblin's life, his engagement, his tragic end and his mathematical works, one may consult [Bru 1993] and [Doeblin 2000], as well as Paul Lévy's paper [Lévy 1955]. Doeblin has more or less been the only young mathematician for whom Lévy expressed admiration.

Wolfgang Doeblin was born on March 17th, 1915 in Berlin, in a family of the Jewish intellectual class. His father, Alfred Döblin (1878–1957), was a neurologist but had met spectacular success as a writer after the publication of his novel *Berlin Alexanderplatz* in 1929. Alfred's anti-nazi engagement obliged the entire family to seek exile as early as March 1933, immediately after Hitler assumed power in Germany. The family established in Paris, and the young Wolfgang was registered at the Sorbonne to follow lectures of the *Licence de mathématiques* from October 1933. There, he followed Darmois' teaching (who was, the same year, replacing Fréchet for the lessons on Markov chains). In June 1934, Wolfgang had already passed the majority of the exams composing the three-years course of the Licence, and moreover seemed to have chosen to specialize in probability theory. In the middle of the 1930s, the *Institut Henri Poincaré* (IHP) had become an