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New scientific relations in Europe at the end of World War I: The example of mathematics through Fréchet in Strasbourg and Hostinský in Brno

(1) Introduction

The present contribution is part of a large European Research programme in History of Mathematics initiated at the University of Paris and the British Academy in London and devoted to the study of mathematics around First World War. This programme includes people from several other countries such as Germany, Switzerland, Italy, Czech Republic. In this last country, through an exchange programme between France and Czech Republic, we had opportunity to study the content of new archival material which gives new interesting views on the subject. The information for my present talk was partly extracted from these studies together with my colleagues in Brno.

The plan of the contribution is as follows.

- The French situation in 1918
- New scientific contacts: Strasbourg and Brno universities
- The example of mathematics: Fréchet and Hostinský

(2) The French situation in 1918

To begin with, let us remind what was the situation of France in 1918. To say the least, it was ambiguous. On one hand, it was obviously a victorious country. With a continuous determination during more than 4 years, France had resisted to the German invasion, paying a heavy price for this result. The province of Alsace and the part of the Lorraine which had been wringed out in 1870 were given back to France, bringing about numerous enthusiastic and emotional celebrations all over the country. On the other hand, the country was exhausted physically, and on the financial aspect it was on the edge of bankruptcy. Blinded by this last aspect, the French politics were obsessed by very hard policies towards Germany, revindicating enormous compensations for war damages, threatening the precarious political equilibrium inherited from the war. This rigid and often not very clever attitude irritated the Anglo-Saxons allies several times, in particular the Americans, who were inclined to a more pragmatic attitude. Of course, it is fair to observe that neither the Americans nor the British had to face a partly destroyed country.

In this prospect, the situation of Alsace was extremely problematical. Situated on the border of the country, the region, though French for three hundred years, had always cultivated its cultural particularism inherited from Germanic roots. Moreover, after having seized the region in 1870, the German Government had soon decided to « regermanized » the country (an emblematic example was the compulsory use of German in schools), so that in 1918, when Alsace came back to France, a large fraction of the population had been entirely educated in the German cultural sphere: two generations of Alsacians spoke German and no more French, they were used to German laws and administrations, and those who had gone to secondary schools and universities had German degrees and titles. A fracture obviously appeared soon between the dreams of Paris of an instantaneous transformation of Alsace in an ordinary French province, and the reality in the field. Politics appointed from Paris to organize this transformation soon sent letters to the Government to mention how it was dangerous and counter-productive to cut corners.

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The local population, though devoted to France, was not at all ready to give up all the particularities it was used to.



(3) New scientific contacts: Strasbourg and Brno universities

Almost immediately after the end of the war, the reconquest of the university of Strasbourg, and its reconstruction along French standards appeared as an urgent task to the French Government. As soon as December 1918, a first contingent of professors in all kind of subjects were appointed and they arrived in Strasbourg in January 1919. Some of them were still in the Army, as was the case for Fréchet about whom we shall speak later on. These professors were often young and taken among the rising stars (in 1914) of the French University. They were given an assignment : to transform the University of Strasbourg in a display of the French intellectual successes. They were specially encouraged to establish contacts with universities abroad, in particular with the new independent countries of Central Europe which had just get rid of the German political domination.

The new born Czechoslovakia was obviously an excellent opportunity for such a programm. It has recently emerged as an independent country on the ruins of the Austro-Hungarian Empire: the parallel with Alsace freed from German yoke was often mentioned. And also its new main politics (beginning by the emblematic Tomas Masaryk and his second Eduard Benes) had kept tight personal and intellectual contacts with France. An extremely active propaganda was organized by the French authorities to convince the Czechoslovak Government and the local administrations (universities, schools, cultural associations...) of the importance of cultural and educational contacts. The two universities of Brno and Bratislava, newly created in 1919, were the object of a special attention. A professor of law at Strasbourg University who came to Czechoslovakia in 1923 in order to establish scientific contacts with the Czech universities writes in a report to the French Minister of Education :

It seemed to me that the very new faculties of Brno and Bratislava, which exist only since the independence of Czechoslovakia, are more susceptible than Prague to organize exchanges with Strasbourg faculty. Precisely because they are new, they would appreciate the honor more than Prague faculty, if one or several among their members were invited to give some conferences at the faculty in Strasbourg.

However, it seems that the local answer to the French sollicitude was more reserved than expected. Of course, the alliance was essential for the Czech, but France was maybe not the only center of interest for them as the self confident government in Paris seemed to think just after the war stopped. As soon as July 1920, the French Ambassador in Prague Fernand Couget writes to the President of Council Alexandre Millerand :

M. Alapetite, representative of the French Government in Strasbourg, expressed the desire that slavic students, in particular Czech, were sent to Strasbourg university. I can certainly encourage the Czech Government to send more grant-holders to Strasbourg but it is not clear that the idea would seduce it. The best solution would be to create new

grants specifically for Strasbourg, but in no way we can expect a financial help from the Czechoslovakian Government. Due to the exchange rate, it is also unrealistic to expect free students to come.

Quite naturally, the objective of the Czechoslovakian Government was mostly to keep the students at home, not to send them abroad. But those who went abroad seem not to have chosen France as obsessively as the French authorities had first thought. Moreover, the fact that Strasbourg had strong links with German culture was maybe not an advantage in the eyes of foreign students from former lands of the central Empires, as the French authorities had first thought. A French diplomat in Transylvania (the part of the Austro-Hungarian Empire given to Rumania) who also tried to attract student to Strasbourg writes to the Dean of Strasbourg university in June 1920:

For many people here, and among the most francophiles, the Alsatian remains an hybrid person, German as much as French, and who, condemned to live on one of the two sides, finally prefers France where his life is more comfortable. [The academic responsables] fear that in Strasbourg one cannot breath an absolutely pure French air. You certainly recognize therein the effect of the Fritz propaganda on the mind of these brave Transylvanians.

More or less, the dream of French culture shining forth from Strasbourg university died at the end of the 1920. Many professors, so enthusiastic in 1920, began to go away (often to Paris) when the possibility of future development in Strasbourg appeared unclear.

(4) The example of mathematics: Fréchet and Hostinský

After having presented this general picture, let us look at the particular case of two mathematicians, in Strasbourg and in Brno, who may appear as emblematic of this period of the immediate after-war.



Maurice Fréchet, born in 1878, was in 1919 one of the « young wolves » of the French mathematics. In the period 1906 (the year he defended an outstanding thesis) and 1916, he had made fundamental researches in Analysis, building topological notions (such as compact metric spaces) and using them in functional spaces for the construction of abstract integration. Mobilized in 1914, he was soon used as a liaison officer with the British Army (Fréchet was a notorious polyglott — and became afterwards an active supporter to the use of Esperanto). Fréchet had the spirit of a scientific missionary, and entertained a huge correspondence with mathematicians all over the world. More than 20 big boxes of letters are kept in the Paris Academy of Science.

As said before, Fréchet arrived in Strasbourg in January 1919, and started almost immediately an information campaign about the « new » Strasbourg university towards Central Europe universities. He sent a letter to the mathematical and physical society in Prague in June 1919. This letter arrived in the hands of Hostinský after several months of wandering.



The reason may have been that Bohuslav Hostinský was the most francophile among Czech mathematicians in the eyes of his colleagues. Hostinský was the son of a very famous personality of the Czech intellectual scene, the musicologist and philosopher of art Otakar Hostinský. After studies of mathematics and physics at the Czech university in Prague, he specialized in Differential Geometry and spent one year in Paris. He defended his Habilitation degree in Prague in 1911 and began to teach at the Czech University. Contrary to Fréchet, he was not mobilized during the war maybe due to a poor health. In 1920, he was appointed Professor of Theoretical Physics in the new faculty of Brno.

After several months of exchanges by letters, the two men had finally the opportunity to meet at the International Congress of mathematics held in Strasbourg in September 1920. The Czech delegation at this conference was specially large (11 members — the total audience at the Congress being around 200 people).

It is a scientifically significant fact that for Fréchet as well as for Hostinský, the new appointment in Strasbourg and in Brno universities was the occasion to develop an interest for the Calculus of Probability, a subject then experiencing a complete renewal. Lead to probability by his studies in Statistical Mechanics, Hostinský was among the first to realize the importance of the Markovian model and Fréchet became at the end of the 1920's his major contact on the subject. The correspondence between the two mathematicians is preserved almost entirely. As a conclusion of the present contribution, I just want to mention that this correspondence appears as a wonderful source to follow the beginnings of Markov Chain Theory as well as a good illustration of the hopes born after the war about the development of a Franco-Czech cooperation in mathematics. We have begun the study of this correspondence. A study of the first letters between 1919 and 1922 may be found in the first issue (March 2005) of the Electronic Journal for History of Probability and Statistics (<http://www.jehps.net>).