SCIENTISTS' FIRST STEP OF EMIGRATION: FROM THE HUNGARIAN PERIPHERY TO THE CENTRE

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Abstract

The migration of scientists from the East European countries to the German universities in the first decades of this century is widely considered the effect of the scientific center to the scientific periphery. Many talented Hungarians left their homeland for Germany at that time as the first step of their emigration to be followed by the second for the USA in the 30s. The first step, however, was not only due to the pulling effect of the center but to the push of Hungary as well. The case of Hevesy, Kármán, Szilárd, Wigner etc. is recapitulated. Some remarks about the impact of the political situation in the center and in the periphery. The term of "emigration" is discussed.

Laura Fermi in her "Illustrious Emigrants" writes about her interview with Eugene Wigner. She asked him whether he had suffered much before emigrating to Germany because of the circumstances in his homeland. "It became unpleasant to live in Hungary" Mrs. Fermi quotes Wigner "if one were fully or partly Jewish." In Wigner's case "unpleasantness" culminated with having been beaten up by three university students "but not badly, not badly at all" Wigner hastened to add. [1]

This anecdote, in addition to Wigner's wonderful understatement, testifies to the fact that the Hungarian scientists who made spectacular careers later, had every reason to leave their native country and not only in an endeavour to change their homes for a better one. In Wigner's case just quoted we have to deal with antisemitism, in others the reasons were political.

Be it as it may, they had to emigrate. In view of the parallellity of their careers and their work, it might be justified to consider their lot to be a special „Hungarian phenomenon" in the history of 20th century science. No doubt, a country as small as Hungary with her ten million inhabitants rarely gives so many highly talented scholars to the world as George Hevesy, Theodor Kármán, Leo Szilárd, Eugene Wigner — to name but a few. They were born in the late 19th and early 20th century in Budapest and brought up in the extremely lively cultural life of the Austro-Hungarian Monarchy. They went to university in Budapest, in Germany or in Switzerland. Then they worked

mostly in Germany and, after the inception of Nazi rule, in the United States. As known, some of them played active and much debated roles in the development of the atomic bomb. This activity of theirs was condemned by many and praised by very few.

Since the "Hungarian phenomenon" cannot be analysed in a short paper I confine myself to dealing with only one element of the story, with the leaving of the homeland.

It would seem obvious to assume that following the natural movement of scientists from the periphery or semi-periphery they migrated toward the centers of science. These are centers 'per definitionem' because they amass everything that is important in the worldscience, and all that goes with it: institutes, people, libraries, instruments, publication channels, competitive and stimulative atmosphere. It is in the centers that the latest theories crop up, where people can get into contact with the latest intellectual trends, etc. etc., facilities generating force lines which start from the centers and attract people able to add to the accumulated riches.

The examination of the "Hungarian phenomenon" has proved that there is another force acting beside the attraction of the center. It seems as if Hungary would have wilfully rejected her talents — for political reasons.

The members of the mentioned generation of scholars enrolled in the universities (the older ones started on their respective careers) in the years preceding or immediately following the First World War. The stormy period which prevailed all over Europe was further exacerbated for Hungary. The Austro-Hungarian Monarchy was dissolved, revolutions broke out, a communist government ruled in Hungary for 133 days then the retaliation of rightist terror; having lost the war Hungary lost two thirds of her territory. Poverty, desorganiation and the threat of drifting to the outer periphery put even the survival of the nation into jeopardy.

While still a student at the Budapest Technical University Leo Szilárd advertised his 'worldsaving' socialist theories on economics on handbills. These dreamy abstract ideas evoked the rage of the rightist antisemitic university circles.

In her diary Szilárd's mother, a lady living with and for his children and family along, wrote about the great importance she assigned to get her sons out of the country as soon as possible — irrespective of the loss that would have caused her [2]. Béla Szilárd, Leo's brother an electrical engineer living in the States told me that they got hold of a gun, and the men and boys in the family alternated in guarding over the safety of their home against attacks which they quite rightfully expected [3].

Police in fact kept Leo Szilárd under surveillance. This fact assumed some importance much later in the United States during the period of the

Second World War when the secutiry officers of the Manhattan Project held him under suspicion [4].

In the circumstances the Szilárd brothers, studying mechanical engineering, left for Berlin where Leo switched over to Physics. In their case both antisemitism and politics played significant roles.

George Pólya mathematician, author of the famous book "How to Solve It?" — somewhat older than the Szilárds, had to emigrate for his relations to the First World War. He left Hungary already in 1912 and did not return even during the war. While Szilárd, George Hevesy and Theodor von Kármán served in the army of the Monarchy, Pólya did his best to evade conscription. True, in the early period of the war he too fell victim to the contagious patriotic fervour, he soon realized that war was lunacy and chose to live as a happy deserter in Switzerland. He did not dare even to visit his home country, he said he was afraid of being incarcerated [5].

Due to restrictions on travel people got stuck in Hungary after the war were in particularly difficult situation.

Michael Polányi obtained doctor's degree in Chemistry in Hungary in 1917. During the revolution, originally a physician, he worked at the Ministry of Health and lectured at the Physics Department then headed by Hevesy. Polányi did not get mixed into politics. But, according to the Wigner, Hodgkin biographical memoir (an authentic document Wigner having been a lifelong friend of Polányi): "The confused political situation and the dictatorial nature of the new regime induced him to return to Karlsruhe in 1919" where he had been working earlier [6].

Theodor von Kármán, however, was deeply involved in politics. The man to become later an US General and to hold a high post in NATO, was put in charge of higher education in the 1919 communist government and far from passive, indeed.

He had spent a period earlier also in Germany for a short time became lecturer at a Hungarian rural "Hochschule" then was soon nominated full professor at Aachen. He parted with his Chair because of the war. After the war he came back to Budapest and was swept into the stream of politics. The University invited him to the chair of the recently decased prominent physicist Loránd Eötvös [7]. Although it goes without saying that von Kármán was never a communist, the rules he imposed during his job — undoubtedly useful and foreward pointing — did serve communist policy as coworker of the "Peoples Communisariat of Education". He inspired a reform in engineers' training which he had found timely and important already during his study years. Many of his decisions encouraged the hope of reaching a higher standard of training. Decisions like these cannot fail to clash with the interests of others. In the circumstances it was no surprise that already in August 1919, at the fall of the communist regime even to know von Kármán was condemnable.

After the defeat of this regime not only promotion to the Eötvös Institute was out of question but he was faced with threats. He went into hiding then secretly left the country. He who despised the entire revolutionary system was held to be a leading figure of communism — and not without any reason. As his biography runs: "I was glad to get out of Hungary. I felt I had had enough of politics and government upheavals. It would be refreshing to the atmosphere, to the University and to the relative stability of work in the sciences." [8]

George Hevesy's lot was similar. He was "Privatdozent" at the Budapest University since 1913. In mid-1918, unable to get nomination to a chair at the then newly founded University in Pozsony (now Bratislawa), he played with the idea of settling abroad. In the fall, however, he was elected Associate Professor to the Department of Physical Chemistry, to be established at the University of Budapest. Early in 1919 Loránd Eötvös invited him temporarily to manage the Second Physics Institute, in the post of full professor.

Hevesy, assisted by von Kármán then his superior at the "Peoples Commissariat of Education" in addition to teaching and doing research, made considerable efforts to bring the physics laboratories up to date. This work also became a bone of contention, particularly with the interests of the Eötvös followers. For his long staying abroad they never accepted Hevesy as one of their buddies. They did take cognizance of his existence but only as an outside person. After the revolution they removed him by disciplinary procedure from the university, deprived him of his "venia legendi," the right of lecturing. Loosing faith in the future of his home country and having no hope of doing earnest research work in the future, he accepted the invitation of Niels Bohr, one of his friends, to his institute in Copenhagen. That institute he left only in 1926, moving to Germany. That vilification and degradation also had a role in his decision to part with Hungary brooks no doubt [9].

At this point I should like to put special stress on "also" since the cases I have described show only part of the motives for emigration. They are examples of the direct push from Hungary, without any relationship to the scientific facilities. We cannot see it in other instances, like in the cases of Edward Teller and of John von Neumann although, in less direct forms, the push was manifest. Neither these scientists nor their families belonged to the new ruling group: as people of the middle or upper middle class they all had to suffer under communist rule; if not in other ways, they were compelled to leave the country temporarily, of course, if possible for a pleasant nice resort place, like the von Neumann family.

However, the description of the indirect effects after the First World War and their consequences in the cultural policy and in the life of the individuals: uncertainty, the deterioration of the conditions and the slim chance for a better future, would fall beyond the framework of this paper.

It should be emphasized that in the cases quoted the push was politically

induced and not by science. (Nor have I gone into the scientific relations then in Hungary). The fact of emigration manifested itself in a change of the geographic location of the homes which was naturally closely related with the tendency to move toward the scientific center.

However, the question, in general, inevitably arises whether emigration assumes special significance in science, or means the same as in the case of, say, a merchant, a banker or a mechanic, viz. a move from one country with no outlooks to another one where the conditions are more favourable.

Michael Mulkay in 1974 defined emigration as "a movement of the scientists from one research network to another" [10]. The "research network", at least in my view, can be interpreted both as a social and a cognitive network, for instance as a scientific tradition, a science school or a scientific trend. In the case of the "Hungarian phenomenon" it would be worthwhile to study to what degree the movement of scientists affected the conceptual elements of their thinking; to see whether emigration only offered better conditions for research and life or whether it opened up basically different intellectual cognitive prospects as well. More exactly, whether in the new surroundings they found thoughts and concepts they could not even hope for in Hungary.

In this paper I wished only to prove that in the "Hungarian phenomenon" the push from Hungary complemented the pull of Germany. The attraction of the center was combined with the push from the periphery, and these forces originated from sources outside of science, mostly from politics.

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