

ACADEMIA

Foundlings

Prof. Włodzimierz Zawadzki

PAS Institute of Physics, Warsaw



Foundlings are a bit like half-breeds, they draw upon diverse sources.

Prof. Andrzej Trautman recalled in *Academia* 3/2017 that he thought about becoming a physicist back in school, but in the 1950s being a physicist meant becoming a school teacher. He therefore attended the polytechnic university and earned a degree in electronic engineering. He ended up in physics after all, but what he had been taught about electromagnetic waves proved very useful in the theory of gravitational waves, which became his professional specialty and brought him great success. When I read that story, I realized I had followed a similar path, although I managed to transfer from electronics to physics already after the first semester. I still had to make up for what I had missed, however, and to the end of my undergraduate studies at the physics department, I felt like a foundling of sorts. That is perhaps why in later years I never avoided other such foundlings. Sometime later I encouraged an electrical engineer to go on to do theoretical physics, remembering how we had been taught a lot of math at the polytechnic.

However, the strangest story of this sort happened about 10 years ago. A physicist I knew got hired at a telecoms company after earning his PhD. A few months later he came back to me, wanting to continue his work in semiconductor physics, as his corporate work was not enough for him. He often visited my home in the evening, after leaving work, for two-hour sessions. He continued to do physics 'on the side' for a number of years, without pay, getting articles published in good international journals under his non-scientific, corporate address. Two years ago he earned his habilitation from the Polish Academy of Sciences, without interrupting his job at the company. I dread to think of what might have happened had he dedicated himself to physics the whole time.

I have recently been collaborating with a Vietnamese physicist from Hanoi, who first studied in Moldova, then ended up in Poland. When he was unable to find a job in physics, he manned a stand at the bazaar that once occupied Warsaw's largest stadium. If he struggles to find a word in Polish when we are talking, he resorts to a Russian one instead, having studied in Russian in Chisinau. He is a classic foundling, we find it easy to understand one another.

In science, like elsewhere, foundlings have advantages and disadvantages. Obviously, they face gaps in

their education, but in exchange they have different skills that prove useful. One physicist I know specialized in experiments before getting into theory. He was behind on certain theoretical methods, but very good at collaborating with experimentalists.

Foundlings are a bit like half-breeds, they draw upon diverse sources. Most importantly, they are well motivated. They get into science for a reason, and they know what they want from it. They are a bit like children from poorer families: they want to be a part of "high society" and they know what it costs and what it feels like. If they manage to make up for their lack of knowledge, they become at least equals to their colleagues who got into science without difficulty, following a straight line.

In today's world, in the era of globalization, there are more and more foundlings. Changing one's specialty or place of living has been made easier by (sometimes broken) English, now the *lingua franca* of science from South America all the way to China. Drawing upon diverse sources is the advantage of international teams, which have become so characteristic of today's science. Suffice it to mention the recent discovery of gravitational waves, which involved scientists from more than a dozen countries, including Poland. The point is not to have more hands on deck (which is easy to achieve), but to draw together a wide range of educations and specializations (which is much more important, and harder).

Nowadays, Asians working in the United States are classic foundlings: they have no lack of skills and they more than make up for any linguistic shortcomings by working very hard. America has always benefitted from newcomers, who brought ambitions and skills with them. Poland, too, was once enriched by capable Jews, Lithuanians, and Belarussians. This should be remembered by those who would prefer to keep us all shut up in our own, somewhat stuffy, play-pen. That is definitely not good for Polish science.

Obviously, people do not just shift into science. They also move out of it, in Poland mainly for financial reasons. Scientists generally end up in industry, set up their own companies or work for banks. There's nothing wrong with that: in their new jobs they are foundlings, bringing different skills they honed in scientific work. Gene-mixing is well known to be beneficial; half-breeds are resilient and virile. So, let's keep mixing. ■