TRANSGRESSIONS

Pierre Cartier – Crossing frontiers… I haven't come to much harm, given that I was born a few tens of kilometres from Luxembourg where it's hard to know if one is Belgian, a Luxembourg, French or German. This is where the vagaries of history have made a real mess of maps. I am testimony to this with a mother whose background is Jewish, a father who steers me to the Calvinist church, one set of in-laws that is ultra-catholic, a grandfather who was an industry leader, somewhat Croix de Feu round the edges, and a mother who drew on all the leftist tendencies of the 30's, well that demands quite a bit of acrobatics… So yes, I know a lot about frontiers! They are made to be crossed!

From a scientific point of view, the start of my career took me across quite a few frontiers since I began as a radio astronomer and I ended up, after a few tilts at philosophy, as a mathematician. I have kept in mind a piece of advice from Feynman which is that in order to do research, you must feel as if you are at the head of a foursome. You hold the reins of four horses and pull on one, pull another, indeed he said that you should always have four irons in the fire. Not to break any secrets, with four irons in the fire, there will always be one that is going well…

So adopting this mindset, I learnt this here, I learnt that there, that's how it is, crossing frontiers, meaning that you don't allow yourself to be boxed up in a specialty… Well, it's not always a comfortable way of life. Because, you need to stand on your own two feet. But it's worth it. It's worth it…

As a mathematician, I am part of the Bourbaki generation that is quite an orthodoxy, a social or mathematical ethos, and even if I was happily part of this enterprise, I have nevertheless crossed several frontiers, sometimes incurring… a few penalties… In my time, in my generation, it wasn't such a good idea to speak of probabilities, nor of logic nor applied mathematics nor physics, and to some extent, I traversed all these fields when I was given a chance to do so…

I could call myself a mathematician without borders, drawing on a well-known saying … I mean, crossing frontiers, that lets one do maths in some rather astonishing countries… After all, not long ago, I was in Kurdistan, it's not trivial to go to Kurdistan, but there were, there were people to whom one could teach maths, over there, so it was worth the effort.

So, why is it interesting to cross frontiers, well because on either side, things aren't the same. You see, it's always fun to go to the other side of the yard, to see the side that isn't… isn't in shadow! It really can be that what is uninteresting on one side is a treasure on the other, that one can tackle things that might seem trivial on this side but that aren't at all on the other side. And to do that, to do good science, what is needed is… what is needed is permanent

imagination. No prejudice and also, as I have learnt from experience, no fear that ideas might be silly. It's one of my constant dreams that while dreaming, I do maths, I do physics etc., and then when I wake up, I say to myself that's crazy, that's completely crazy, that makes no sense. But the dream often sets me the challenge of not myself believing in what I believe. And that's important. It's no good launching into an idea in the belief that it is silly, silly and cannot possibly go anywhere. Better is to ask: does it work, or doesn't it work? And the completely unexpected similarities between totally different things, that pays off. What comes from the other side is… is and isn't like what is on this side! It's an image. But it's an image that is full of surprises. That's why dreams are good. Because they duplicate reality but without copying it exactly. It's true that present opinion has it that frontiers are walls, but that's just not true! What happens is that there are little doors, like with Alice, that open onto a rabbit hole that discloses something behind. The key is to know how to get away from one's country, it's always like that… Try to know how to notice, like Alice, the rabbit that jumps down its hole and say: I am going after him! Now that's completely crazy, of course, and it would be much more comfortable to stay in an armchair watching the rabbit come and go…

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