

Marina Ratner, *quelques évocations*

Jean-Paul Thouvenot

At my first encounter with Marina, in Jerusalem, in 1974, just after the Lavi Conference, I saw a young woman quite shy, sweet and smiling, pleased to receive a gift that a common friend had prepared for her from Paris. I met her later in Berkeley when she was already settled; I paid several visits there. Memory is sometimes strangely selective—I remember distinctly that, in an excursion which we took together with her and the Katok family to “Pebble Beach” (this I am not sure of), she had a very battered car, with the exhaust threatening to fall off at every turn.

Her mathematics, which had started in Moscow with Sinai, received the influence of the California environment, and one of her first works there was the proof that the horocycle flow is loosely Bernoulli, an abstract measure-theoretic property that was quite popular at that time in Berkeley, the impetus for it having been given by Jack Feldman. A second paper, which came quite quickly, was that the Cartesian square of the horocycle flow is not loosely Bernoulli. This was, for the group of people working in this field, quite unexpected and very strong. The non-loosely Bernoulli property all of a sudden being attached to a simple algebraic object, while all previous examples, starting with the one of Jack Feldman, required elaborate combinatorial constructions. This work of Marina is extremely difficult to read, and I remember, when I came to complain (the last time was not so long ago) to her, “But it is so simple, just follow what is written, everything is completely natural, you will not find any obstacle...” In this same work appeared for the first time the “shearing” that was going to play such an important role in her subsequent works. And then came, in an extraordinary succes-

sion across a few years of mathematical excitement, a list of papers in which she developed her theory of horocycle flows culminating in the complete description of their joinings, which entails all their rigidity properties. Strikingly, Marina always worked alone and never had coauthors. As to joinings, she managed all by herself, and to my knowledge, without trying to get too many contacts with the people close to her who were active in this field at that time.

On a visit that she paid to Paris at about the same epoch, I put her up in a nice hotel close to Jussieu (as I usually did with visitors). But almost immediately, she came to me quite pleased to have moved with her daughter to a very modest place close to Gare de l’Est, proudly announcing, “Believe me, it is the best possible place as a starting point to visit Paris.” Singular Marina!

Her work took a new turning point when she got, as an elaboration of her previous ideas, her fundamental result on the Ragnathan measure conjecture. Strangely, her mathematics, so deep, which is so much alive nowadays, and in so many different directions, is most frequently used as a black box or as a model.

It was a great shock to receive the message from B. Weiss that she had died, shortly before a conference dedicated to the memory of Rufus Bowen, which she had accepted to attend.

I want to mention another memory, or more precisely, an image, because of the deep impression that it has left on me, although I cannot trace back exactly when it took place. I think that it was at a conference in Warwick: she was lecturing, so strong, so determined, and in appearance so fragile, all alone, in front of a huge audience.

In the same way as her mathematics does for our community, her presence, in the minds of those who have known her, persists with all the strength, the singularity, and the seduction of the exceptional.

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