Par la suite, il s'intéressa de plus en plus à la philosophie et en particulier à Aristote, sans nulle rupture : n'avait-il pas fait des mathématiques en philosophe ?

Marc Chaperon

René Thom Obituary

The first mathematical work of any significance that I did was inspired by ideas of René Thom and I am very much indebted to him. I wish to briefly indicate what I owe him.

I first heard of Thom in my undergraduate days when I saw a film of a Milnor lecture on cobordism theory. Milnor explained Thom's ideas with his usual brilliance. I think, however, that what made the film so striking was the extraordinary originality of Thom's ideas.

Later, when I was a first year graduate student at Princeton, Tony Phillips told me that Milnor had advised his students to read a set of lecture notes prepared by Harold Levine on the basis of lectures given by Thom in 1960 in Bonn, on singularities of mappings. The notes contained a list of unsolved problems. Thom's fame provided a big motivation to try to solve the problems!

By the summer of 1965, I had a solution of most of the problems, partly based on methods in the notes. I used an idea of Harold Levine a great deal in proving my results. Moreover, most of the results that I obtained were based on Malgrange's preparation theorem or a slight generalization of it, which I proved. Malgrange has related how Thom "forced" him to prove his preparation theorem, by insisting that it must be true. I used Thom's transversality theorem over and over again.

The vision of how the theory would develop was Thom's. A similar vision is implicit in a series of papers that Whitney had published over many years, but Whitney proved theorems and did not write about how he expected the subject to develop in the future.

Central to Thom's vision was catastrophe theory, a subject that Thom created. To my mind, this belongs to the old branch of applied mathematics called bifurcation theory. Thom's originality was to show how to study higher codimension (in his terminology) bifurcations. This was an entirely new direction in this old subject. Tools that Thom created or inspired (Thom transversality, Malgrange's preparation theorem) are essential to this theory, as well as to the theory of singularities of mappings.

After my success in solving the problems in the Thom–Levine notes, one major problem remained. This was the question of the density of topologically stable mappings. I found the proof of this in 1969, towards the end of my two year stay at IHÉS, after I had discussed this question a great deal with Thom. Afterwards, it seemed to me that the strategy of the proof (especially the use of stratifications) was mostly Thom's ideas, but much that was needed for a complete proof was lacking in his discussion. Thom's ideas may be found in various publications of his that he had published years earlier ; what he told me did not differ substantially from what he wrote in these publications.

Those two years at IHÉS were wonderful for me. Thom treated me very kindly, as I am sure that he treated everyone. He had a very modest and tentative manner of explaining his ideas, but after a time it became clear he was very convinced by their correctness and worth, since he kept coming back to the same ideas, evidently hoping that if he repeated himself often enough, his audience would eventually understand what he was talking about.

He was a most original mathematician and a wonderful person.

John N. Mather