The Foundation and the Parisian years of the lab

PLAN

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The Ecole in Paris

The Ecole polytechnique is a small and prestigious scientific college corresponding to the last two years of undergraduate studies. Before 1976 it was located in the campus where we are.

The Ecole was not research oriented, in 1958, there was only two laboratories (experimental particle physics and ionized matter).

In the 1940's, a growing number of French students, including Louis Michel, were interested in particle physics. After the war, some of them were going to create theoretical physics in France almost from scratch.

However they had first to learn the subject and become theoretical physicists. In order to do that, they mainly went to England and the United States.

Louis Michel (1923-1999)

After WWII and his studies at polytechnique, Louis Michel went first to Manchester (thesis in 1953), then Copenhagen and Princeton.

One of the major question at that time was to bring some clarity to the first experimental results in particle physics, in particular, using as few parameters as possible.

One of the main tool was to find and then use symmetries. Louis Michel was very good at that and he became a well known specialist of symmetries, symmetry breaking and more generally group theory in physics.

There is a Michel's parameter associated with the μ decay.
He discovered the isoparity-symmetry.

There is a Bargman-Michel-Telegdi equation which describes the spin evolution in a magnetic field.

During these years, he kept a link with his former institution and its young students : he made a communication on mesons decay in 1952, with a first year student, Raymond Stora, who will became a regular visitor of his future lab.

The foundation and the early lab

Louis Michel was back definitely in France in 1954. He became associate professor at the Ecole and professor at Lille University.

A group of students of the 1953 year began to discuss feverishly around him as soon as 1956 and they were known as Michel's creatures : Claude Bouchiat, Henri Epstein and Gerard Flamand.

Dimitri Fotiadi who, after a first career as an engineer wanted to do theoretical physics, joined the group in 1958.

Michel and Fotiadi proposed to the Ecole to found a theoretical physics lab with these students.

The proposition was accepted. This is the lab foundation !

They were given two rooms and some money to hire a secretary, Mlle Pouderous. She will later become the head secretary of both lab of theoretical physics and mathematics.

The feverish and full of enthusiasm, life of this small group came to an end after roughly three to four years.

Louis Michel as well as some of the younger members were hired at the Orsay University (which was in its early development) and the others found fellowships to go abroad.

In 1962, Louis Michel moved to the IHES as professor. From there he continued to take care of the lab and to send people to it.

There he met Jean Lascoux (1928-2008) who had also gone to Manchester and Princeton and was a mathematical physicist with an encyclopedic knowledge. At that time, he was working on the analytic structure of the scattering amplitudes.

Jean was going to be the central figure of the lab for many years.

The rebirth

At the end of the fifties, Louis Michel had accepted to help and guide four students of the year 1958 : Claude de Calan, Gérard Fuchs, Pierre Renouard and Roland Sénéor who had first to finish their scolarity and then do their military duty in Algeria.

In 1962 the war was finished and they were back, ready to resume their studies. They are at the center of the "rebirth" of the lab.

The same year, Fotiadi was back from the States.

Louis Michel proposed to Lascoux to join the lab and to help the young people who had just arrived (the ones with a more mathematical orientation).

A few years later, he made the same proposition to Tran Truong, a brilliant phenomenologist who was visiting the IHES. He would lead the lab activity in particle physics.

As Michel was leaving Orsay, he also send his students to the lab : Amitabha Chakrabarti, Pierre Minnaert, Monique Levy-Nahas (the only female scientist !), Eduardo de Rafael,....

In 1962 Dimitri Fotiadi became officially the director of the lab.

The sixties and the seventies

In 1959 Laurent Schwartz became professor of mathematics at polytechnique.

Louis Michel incited Schwartz to found a laboratory of mathematics which was finally created in 1965.

The two small labs had a common, secretary (Mlle Pouderous and Françoise Andalo), old roneo machine for the preprints and tea time.

As the labs grew the space became more and more crowded, moreover the secretary had to be expanded, mainly due to the typing issue (Marie-José Lécuyer and Michèle Lavallette were hired).

At that time the articles were first handwritten and then typed, with the complication of the use of mathematical symbols and Greek, Hebraic...alphabets. Often there was a queue to be typed.

The most time consuming task of the secretary was the typing, on sheets called stencil, which were used to make the preprints with the roneo (operated by Monsieur Cornet).

The lab location was behind the former Arago amphitheater, it consisted of

two rooms for the common secretary and the roneo,

and for the physicists, two rooms, a large corridor and a fourth of the former amphitheater.

The corridor was divided, as to make a kind of open space with four offices.

A former large closet was transformed, and became the office of Fotiadi, the director.

The fourth of the amphitheater had been divided in the lecture room and the library, with a fourth of a monumental window which gave some day light.

This was a time (the sixties and beginning seventies) before the personal computers, latex, the net and archive.

The scientific news were coming in the form of seminars and of preprints.

Lascoux was knowing many physicists, was on many mailing lists and it was his pleasure to go to as many seminars as possible.

He was thus our main source of preprints, information, references and contacts.

He could reproduce a whole seminar for us. And if something had been published in physics or mathematics on any given subject he could find it.

He was able to attract prestigious speakers for courses which made a lasting impression on the participants (Klaus Hepp on renormalization, David Ruelle on Lee-Yang theorem and Peierl's argument).

In short Lascoux was the center of the lab's scientific life.

All this made a small active and growing lab.

How to reach the laboratory

There was an entrance to the campus rue du Cardinal Lemoine just opposite our favorite café.

Once in the campus you passed near a remain of an old (~ 1215) wall of Paris, then you turned left through a monumental porch which gave access to a courtyard. Just after the porch you took on your left, upwards, a small path which became a balcony, then you walked between the wall and a kind of mobile home (which belonged to a plasma physic laboratory), resting partly on the balcony and maintained by cables. A little further, there was on the left, a door which was giving access to the corridor where the lab was situated.

The atmosphere

This was a lab with a friendly atmosphere and where you could do whatever research you wanted.

There were no obligations. The students could leave their thesis director, change subject of research, have collaborations or advisor outside the laboratory as they saw fit.

This was due in part to the Michel legacy, to Fotiadi and Lascoux and to the fact that all these people had positions : it was a time, where a graduate student could get a position at the CNRS.

There was almost no grants so no paperwork.

However the cost of a growing laboratory increases, this one was active mainly in mathematical physics which, at that time, was entirely supported by the experimental particle physics community.

Moreover it was in an institution -polytechnique- which was not research oriented.

The existence of the lab in the early seventies was on the brink.

The plasma group

An important part of the stabilization came from the arrival of the plasma physics group of Laval and Pellat, who had a good reputation and added a more applied activity.

They were attached to the CEA (Department of atomic research) and they felt being too limited in their scientific activities by their administration.

They wanted to switch to the CNRS and they contacted Louis Michel. He immediately promised his support and proposed to them to join his former lab. Officially this was done around 1971.

However leaving their former positions to get new ones took circa four years. They physically arrived at the end of 1975 just as the lab was moving to Palaiseau. This was a good thing because there was no place to accomodate them in Paris.

The move to Palaiseau

With the move to Palaiseau, the authorities had decided to associate to the Ecole a scientific research center.

After the move the lab that is the CPHT is a stabilized lab (CNRS-Ecole polytechnique) with a dedicated joined building with the mathematics, in a research center linked to a teaching institution.

It is the beginning of another story.