

## Chapter 15. *Directeur de Recherche, 1984-1988*

In order to conclude the chapters about Grothendieck's professional activity, we must now jump far ahead in time.

It would seem that Grothendieck took the decision to give up his teaching activities at the beginning of the 80s. The decisive factor no doubt lay in the fact that the interest and involvement of the students did not come up to his expectations. He applied for a research position at the institution where he had begun his scientific career, namely, the CNRS (*Centre National de la Recherche Scientifique*). He credited Zoghman Mebkhout with having first given him the idea, as he wrote in a letter dated June 15, 1983:

Our short meeting has had one unexpected result: when I heard that you were starting at the CNRS, it became clear to me that I don't have anything to really do in a university department. I have decided to follow in your footsteps and apply for a position at the CNRS.

A position at the CNRS usually implies being associated with a *laboratoire* (a university department), and in the letter Grothendieck speculates on how this could be arranged in his case. He considered the possibility of being an "isolated researcher", or creating a small *laboratoire* around himself. He asked Mebkhout if he would be interested in working together, and also considered Contou-Carrère as a collaborator. In his application to the CNRS, Grothendieck presented a research program which went on to achieved quite some fame: the *Esquisse d'un programme*. This text begins with the following sentence:

As the present situation makes the prospect of teaching at the research level at the University seem more and more illusory, I have resolved to apply for admission to the CNRS, in order to devote my energy to the development of projects and perspectives for which it is becoming clear that no student (nor even, it seems, any mathematical colleague) will be found to develop them in my stead.

A misunderstanding arose in regard to this application, due to the fact that the CNRS assumed that Grothendieck wished to exercise his activities at the IHES. In response, Grothendieck clarified the situation in a text dated September 9, 1984 :

It is generally known that I left the IHES in 1970 due to serious disagreements with the direction and with my colleagues concerning ethical, scientific principles, disagreements

that still persist today. It is equally common knowledge that for over ten years I have been refusing invitations from French and foreign universities, and that I pursue my work either at home or at my institute in Montpellier.

Grothendieck then refers to the doubts of some people as to the seriousness of his interest in scientific research:

I have heard that within the committee of the CNRS, concerns have been expressed about my application on the grounds that I am not prepared to confirm the direction of my research. This argument is clearly refuted by the text (*Esquisse d'un programme*) which I submitted to the committee, and in which I explain the context in which I am making my application.

Grothendieck was appointed to the post that he desired, or at any rate a similar one, starting in October 1984. Alain Connes was at that time a member of the committee that made the decision. He told the author that he was obliged to intervene to make sure that Grothendieck's case was considered in time, before all the available positions had been attributed to others. Grothendieck held his position at the CNRS until his retirement in October 1988. During this time he visited the mathematical institute in Montpellier only very exceptionally. His collaboration with colleagues from his earlier work group had come to an end; he was truly a *chercheur isolé*.

In Chapter 22 we will deal briefly with the content of the *Esquisse d'un programme*. Contou-Carrère told the author that around 1983 Grothendieck held a series of lectures in which he developed his ideas about the “Teichmüller tower” and the calculation of the absolute Galois group of  $\mathbf{Q}$ , though a full-fledged seminar did not take place.

With regard to Grothendieck's “research activity”, it appears that the only existing mathematical texts from the period of 1984-1988 are some sketchy notes on topology. Apart from that, he was mainly occupied with writing *Récoltes et Semailles* and *La Clef des Songes*. Only after retiring did he turn once again to writing mathematical texts, producing the two thousand pages of *Les Dérivateurs*.