

Chapter 5. After resigning from the IHES, 1970

In this chapter we will give an account of the period from June 1970 until September, in which the "great turning point" actually took place. Three major events occurred at this time: Grothendieck's second trip to Romania, his trip to Montreal where the group *Survivre* was founded, and the International Congress of Mathematicians in Nice.

Shortly before his resignation Grothendieck undertook his long-planned second trip to Romania. Once again, it came about thanks to an invitation by Bucur, and lasted from the end of May to the end of June, taking him to Bucarest and on excursions to the surrounding area with colleagues. Cornel Constantinescu recounted to the author, among other things, the following:

On the second visit Grothendieck gave a lecture on the four Weil Conjectures at the Institute of Mathematics at the Romanian Academy. The lecture was a real pearl; practically all of those present understood the lecture fully. One odd thing was that during the lecture Grothendieck wore shorts, something which I had never seen at a lecture before.

At that time Grothendieck had given up mathematics and biology and was concentrating on *Survivre*¹. During his stay in Bucarest I placed my office at the Institute of Mathematics at his disposal [...] and he [...] wrote his manifesto about the danger that humanity could disappear through the use of the atom and hydrogen bomb. I arrived once around noon to go eat somewhere. He gave me the completed manifesto to read and asked me for my opinion. "I'll tell you later," was my answer [...] As we left the building I said to him that I had not answered his question because I wasn't sure if the walls of my office were bugged. I then made two objections [...] In the restaurant Grothendieck ordered only boiled rice, nothing else. The waiter seemed a little bewildered, but soon brought us the requested rice.

Constantinescu also writes that Grothendieck reacted negatively to the idea of being named a foreign member of the Romanian Academy. On the street where they could not be spied upon, they discussed the political situation and the danger of nuclear war. A two-day excursion to the

¹ Constantinescu's memory is faulty here; Grothendieck had just begun to get interested in biology, and *Survivre* was founded a few months later.

Ciucaş Mountains was also organized. Finally, there was the project of a public lecture, probably also about the danger of nuclear war:

We thought that this lecture would naturally take place in the same hall in which he had given his math lecture. When Nicolescu [the director of the Institute of Mathematics and also president of the Romanian Academy] heard that Grothendieck was planning to engage in large-scale publicity for his lecture, he became concerned that Grothendieck might say something on this occasion which could disturb the Romanian authorities (which would have negative consequences for the Institute of Mathematics), and he refused the use of the hall. It was practically impossible to find another hall in Bucarest. The lecture came to nothing, and Grothendieck was upset with Nicolescu.

At the University of Orsay, on June 26, 1970, shortly after his official letter of resignation and immediately after the trip to Romania, Grothendieck gave a lecture before an audience of hundreds, in which he spoke of everything important to him: the spread of nuclear weapons, the arms race and the threat to humanity due to technological progress. For the first time, at this lecture, he went so far as to describe even mathematical research as dangerous, inasmuch as it is part of "technological progress". Apparently, apart from his talk on the Vietnam trip, this was only the second time that he had addressed a large audience on a non-mathematical topic.

There is a significantly expanded sixty-three page written version of this lecture titled "*Responsabilité du savant dans le monde d'aujourd'hui - le savant et l'appareil militaire*" ["The scientist's responsibility in the world of today - the scientist and the military apparatus"]. It is noteworthy that this first paper, written during the period of *Survivre*, touches on almost all the essential themes of that time. From the very beginning Grothendieck possessed a fully-formed ideological concept. On July 8, 1970 he gave almost the same talk in Montreal, and later on he gave similar talks with similar titles on numerous occasions. At the end of the written version of the lecture one finds the following appeal and remark:

It is up to you, to give the movement

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strength and vision. Contact A. Grothendieck in order to become a member, or for any critiques or suggestions [...] and give your full name, address and profession.

Any reprinting and circulation of this exposé in its entirety or excerpts thereof, in the original language or in translation, is expressly authorized and urgently recommended by the author.

The first reactions were typical and perhaps doubly shocking to Grothendieck: many of his colleagues reacted negatively or indifferently and saw the whole thing a sort of “happening”, such as were common at that time. Many of the revolutionary students continued to show contempt and enmity. For them, Grothendieck was just a part of the establishment.

After his return from Romania, Grothendieck spent only a short time in Paris before traveling to a summer school in Montreal. The main event there was the spontaneous founding of the group *Survivre*, which will be described in detail in the following chapter. Although mathematics was not his main concern in Montreal, he did give a math seminar. In 1974 the University of Montreal published a somewhat incomplete written version of Grothendieck's lectures. The one hundred and fifty page text is titled *Groupes de Barsotti-Tate et cristaux de Dieudonné*, and includes a letter from Grothendieck to Barsotti. The text was written up by Monique Hakim and Jean-Pierre Delale, and edited by John Labute. Spencer Bloch, who was working on his thesis at that time, recalls that Grothendieck was clearly more interested in *Survivre* than in mathematics. He was a bit disappointed with Grothendieck's math lectures.

At the end of July Grothendieck was back in Paris, and in his own way he prepared himself for the International Congress of Mathematicians in Nice. These preparations consisted mainly of the editing and printing of the Orsay lecture, of which he wished to distribute about a thousand copies at the congress. He even turned to Motchane, on July 29 with a plea for logistical and financial support. Motchane answered on the same day that no staff was available in the month of August, and that financial participation would not be possible.

There was an exchange of letters between Grothendieck and the head secretary of the IHES, Annie Rolland about this subject. (A secret romance between Motchane and Rolland was to some extent the emotional basis for the IHES.) Rolland and Grothendieck had a friendly, almost affectionate relationship with each other. The archives of the IHES contain many of their letters to each other; she signed these letters Annie and he Shurik. Rolland was also helpful in private matters such as house searches, Mireille's illnesses, or the hiring of domestic staff. It

would seem that this correspondence was terminated with the following letter from Grothendieck:

Dear Mademoiselle Rolland,

I have received your communication of 19 and 20 August and deeply regret that you persist in giving a deformed version of the facts (who do you think you are fooling? I think neither yourself nor me) and that you do not give an answer to the point in question. That is regrettable. Until today I never doubted your honesty and good faith.

Yours sincerely,

A. Grothendieck

On Tuesday September 1, 1970 at 9:30 A.M., Monsieur Olivier Guichard, the National Education Minister, declared the opening of the International Congress of Mathematicians in Nice. This congress, one of the most important events in the world of mathematics, takes place every four years. The main organizer in Nice was Jean Dieudonné, Grothendieck's former teacher in Nancy, and subsequently his colleague at the IHES and co-author of EGA. Altogether almost three thousand participants from all over the world gathered in Nice. It was here that the great turning point in Grothendieck's life became known to the mathematical public for the first time. He was, especially for the foreign visitors, a spectacular - perhaps *the* spectacular - figure at the congress.

After the minister's beginning, Henri Cartan took the stand, and Jean Leray and Paul Montel were elected president and honorary president respectively through acclamation. Then, coming to the main point of the opening ceremony, Cartan gave a short sketch of the history of the Fields Medal, introduced the prize committee and then announced the names of the prize winners in alphabetical order:

Alan Baker
Heisuke Hironaka
Sergei Novikov
John G. Thompson.

Olivier Guichard presented the medals, and then followed laudations for the prizewinners. Grothendieck was responsible for Hironaka's laudation, and thus participated in the congress in an official function.

During Baker's laudation, Grothendieck had been going around the packed auditorium, handing out his brochures. When his turn came he

laid down his bundle, ascended the podium and gave a brilliant report on Hironaka's work, speaking in English even though the French lecturers had been expressly requested to use the French language. He first formulated the main result of the resolution of singularities of algebraic varieties in characteristic 0, using the language of varieties rather than schemes. Then he mentioned some important applications that had been given by Hironaka himself and also by Deligne, M. Artin, Griffiths, Grothendieck and others. He naturally said little about the proof itself, but emphasized that it was one of the most difficult and monumental proofs in mathematics and had necessitated ten years of concentrated labor. He mentioned that the proof introduced new ideas in geometry whose future significance could not yet be measured. On this occasion (at least in the laudation's printed version) he could not resist commenting: "This is all the more true since the development of algebraic geometry, and everything else as well, will come to an end if our species disappears in the coming decades – a possibility that today seems more and more likely." During the next two laudations he continued handing out his brochures to the audience.

In the Algebraic Geometry session, Grothendieck gave an invited lecture on the topic that had occupied him the most in recent years: Barsotti-Tate groups and crystals. He mentioned that he had given a more detailed presentation of this subject in Montreal, and referred to William Messing's thesis.

Grothendieck's main concern at the Nice conference was publicity for *Survivre*. He expected and hoped for a massive recruitment. In actual fact he gained, as he relates with disappointment in *Survivre's* bulletin, exactly four new members and 1300 Francs in donations. In spite of this he attracted quite a lot of attention; after all he was one of the most famous mathematicians of all time, and the overall political climate was favorable to him. Thus, on September 4, about three hundred people attended a public discussion about the goals of *Survivre*. Together with his son Serge, Grothendieck set up an information stand and distributed hundreds of brochures about *Survivre*. This led to a fiery discussion with Dieudonné, who was responsible to the administration for the smooth running of the conference. (During the years of the student revolt the authorities were – rightly or wrongly – always prepared for the worst.) As a result of this, Grothendieck carried his information stand out of the building where the lecture hall was and onto the street. That made things even worse, because the organizers had promised that there would be no public political demonstrations. The chief of police of Nice appeared, and Grothendieck was asked to remove his stand from the street. It would

only have meant taking a couple of steps backwards, but he refused. Cartier, who witnessed everything, exclaims "He wanted to go to prison, he simply wanted to go to prison!" Finally Cartier and a few colleagues themselves carried the information table a few feet to the side. Allyn Jackson quotes Cartier on these – and other – events with the following words: "In his heart he was always an anarchist. In regard to many points my own position was not far from his. But he was so naive that it was completely impossible to undertake anything political with him."

If one speaks today with participants at the ICM in Nice, they frequently refer to his clash with Lev Pontryagin. Pontryagin was a prominent participant from the Soviet Union; he gave a lecture on linear differential games and mentioned, as an application, the pursuit of one airplane by another. Grothendieck was not present at the talk, but some listeners who had not really appreciated the topic, or perhaps the application, told him about it. Upon this he ascended the podium after the lecture and demanded from the speaker and the audience an opinion as to whether it would not be preferable to renounce doing research that has military applications, no matter how interesting the theoretical content. Pontryagin made some excuses and received demonstrative applause from the audience. Dieudonné or Cartier (or both) interceded, and Grothendieck attempted to discuss the issues that had been raised in a personal conversation with Pontryagin. Pontryagin was obviously uncomfortable, and eventually declared that all mathematics could be used for military purposes and that it was therefore not possible to concern oneself with the possible applications of such research.

Jacob Murre, who witnessed all these events, also participated in the discussion meeting about *Survivre*. In a private conversation he later expressed his – very legitimate – doubts, namely that most of the participants and people interested in the event were not true "idealists", but were attracted mainly by Grothendieck's fame as a mathematician.

We shall conclude this account of the ICM 1970 with a very small but very typical detail: Grothendieck naturally refused to book a hotel, but had instead preferred humble lodgings in a dormitory.