

6. Survivre et Vivre, 1970 - 1972

6.1 The Turning Point in the Spring of 1970

In this chapter we will address the issue that was Grothendieck's main concern from the years 1970 to 1973: his commitment to the budding ecology movement, to a new way of life, and to a “cultural revolution”. In contrast to almost all the other phases of Grothendieck's life, we are relatively well informed about this one, thanks to the many details about his activities contained in the bulletin of the *Survivre* movement. It represents one of the main sources for the following account.¹

We have already stated that Grothendieck's rejection of mathematics did not have an exclusively “negative” reason - exhaustion, disappointment, or some such thing - but also a “positive” one: he had found a sphere of activity which seemed to him more important than mathematics, and to which he devoted himself in the next two or three years with the same energy and vigor as he had previously in mathematics. This sphere of activity was environmental protection in the broadest sense of the word, the emerging ecology movement (in which the word “ecology” takes on a wider meaning than just the name of a specific discipline of biology), the battle against nuclear energy, armament and the military, and the commitment to a new social order. He subscribed to the ideals of the new student generation and participated in the “cultural revolution” of May 1968. The new goals and values impressed Grothendieck so strongly that he became a convinced follower. At this point he did not consciously give up mathematics, nor did he yet consider his research as a “journey through the desert” as he often termed it later on. He did, however, predict that a technology-based civilization would eventually be responsible for the breakdown of society, if not its total extinction, and regarded mathematics as an essential contributing factor. Grothendieck's behavior in this sense was contradictory. We will narrate how he gave dozens of university lectures on subjects such as the Weil conjectures or crystalline cohomology, then immediately proceeding to demonstrate by a second lecture that scientists and

¹ The movement *Survivre* is the subject of an exhaustive study: Céline Pessis: *Les années 1968 et la science, Survivre ... et Vivre, des mathématiciens critiques à l'origine de l'écologisme*; master's thesis at the EHESS [*Ecole des Hautes Etudes en Sciences Sociales*], Paris 2008/2009. This text of over two hundred pages contains detailed information on the topics dealt with in this chapter.

technicians, including mathematicians, were more responsible than anyone else for endangering human civilization. Be that as it may, he had in any case found something that - at least for several years - was more important to him than mathematics.

If one takes a close look at the documents, one can ascertain that Grothendieck's interest in the environmental movement and ecological problems arose quite suddenly. He had always followed the political situation with interest, but without focusing on issues of environmental policy. Until the spring of 1970 there are no documents at all in which Grothendieck expresses himself on environmental protection issues. Perhaps it is a coincidence that his interest was awakened at the climax of the crisis at the IHES, but it is more likely that this conflict contributed to "opening his eyes".

During his second trip to Romania in June 1970 he had intended, as has already been mentioned, to also give a non-mathematical public lecture on the dangers of nuclear war. It had ultimately been impossible to give this lecture in the Romanian police state of that period. Nevertheless, he did write a first version of the "ecological manifesto" of the group *Survivre*, on which, some time afterwards, he gave a lecture in Orsay.

We do not know which external triggers were decisive in his swing towards the environmental movement. One can only wonder which people may have inspired him, which newspaper articles or books he read, what lectures he attended, and in what discussions he took part. Today it is not really possible to shed light on such questions. In his later writings Grothendieck himself hardly mentioned these things.

There is, however, a hint about one such trigger. Poenaru believes that during discussions with Dimitrescu, Grothendieck first became aware of the full complexity of biological processes. His world-view as a mathematician had previously been much narrower, more limited and at the same time more structured. But perhaps the most trivial explanation is also the most applicable. As Cartier expressed it: it was the *Zeitgeist*.

6.2 The founding of the group *Survivre*

In July 1970 Grothendieck traveled to Montreal in order to take part in a summer school on algebraic geometry and commutative algebra. He was invited to this conference to lecture on crystalline cohomology. He declared himself ready to accept the invitation under certain conditions. Firstly, apart from his mathematical lecture, he wanted to give a talk of the same length about his ecological goals, and secondly, this lecture was to be announced in the same manner and with the same publicity as the mathematical one. The conference committee accepted these conditions, and thus, among the documents handed

out as always at the beginning of a conference, the participants found more or less the same text as the earlier lecture in Orsay. (However, Grothendieck's talk and other activities are not mentioned in the official record of proceedings of the *Département de Mathématiques*.) On July 4, he gave a talk on his program which elicited a large response.

Apparently his charismatic personality impressed a whole group of people - particularly younger mathematicians – so strongly that the founding of the group *Survivre* followed the lecture spontaneously. Gordon Edwards, at that time a Ph.D. student under Paulo Ribenboim, a friend of Grothendieck from youth, writes among other things:²

I was profoundly moved by his passionate commitment to truth and honesty and his dramatic efforts to awaken scientists to the unthinkable consequences of continuing to drift towards inevitable catastrophe without sounding the alarm for our fellow humans and fighting against the forces of global destruction with all our intelligence and all our spirit. He perceived that we are sleepwalking towards Armageddon, oblivious of our responsibility to save this miraculous planet teeming with life from the ravages of the untrammelled powers of destruction made available through the progress of science and technology.

I was particularly struck by his bold assertion that the most dangerous people on the planet for the last century or so have been the scientists, not the generals or the ruthless political leaders who launch wars. The reason for this is that the scientist calmly puts into the hands of these powerful people whatever they require in order to exert greater and greater impact on the planet and on living things. The almost complete lack of a sense of ethical concern coupled with effective action amounted in his view to an almost total abdication of responsibility to the human race. He implied that this was unconscionable, and I found myself agreeing with him.

The date of birth of the group *Survivre* (the words *et Vivre* were added later) was July 20, 1970³, and the place was Montreal.

SURVIVRE ***mouvement international pour la survie de l'espèce humaine***

The movement's goals are summarized in the first bulletin dated August 1970 as follows :

Fight for the survival of the human race and for all life, which is endangered due to the

² e-mail to the author dated 17 March 2004

³ It is remarkable that *Les Amis de la Terre*, the French chapter of the movement Friends of the Earth (founded in 1969) was founded in the same week.

ecological imbalance caused by the industrial society of today (pollution and destruction of the environment and natural resources), and by military conflicts and the threat of military conflict.

On July 24, the activists that had come together in Montreal held their first general assembly, and the decision was made to publish a monthly bulletin. An editorial committee was appointed, at first consisting of Edwards and Grothendieck. Furthermore, a temporary board of administrators was elected, the members of which were Matilde Escuder, Grothendieck, Paul Koosis, William Messing, Edouard Wagneur. Matilde Escuder, whose profession is listed as elementary school teacher (*institutrice*), was the wife of Felix Carrasquer. Both were good friends of the Grothendieck family; we will speak of them in detail in Chapter 27. Bill Messing was Grothendieck's Ph.D. student. Koosis and Wagneur were mathematicians in Los Angeles and Montreal respectively. The first bulletin contains a membership list of twenty-five people (including those already mentioned), of which eighteen were mathematicians. One can presume that almost all of them were “enlisted” by Grothendieck. His son Serge, seventeen years old at the time, was present, as was his mother-in-law, Julienne Dufour.

Grothendieck soon succeeded in persuading other prominent mathematicians to participate, especially those who had already been involved in leftist movements. In the next issue of the bulletin, Claude Chevalley (1909-1984) was already officiating as director of publication and also as a member of the editorial committee. About a year later, Pierre Samuel became a member of the French editorial committee, which Edwards had in the meantime left, although he continued to be responsible for the English language edition. At the same time the movement was renamed *Survivre et Vivre*. Later on the bulletin stopped printing publication details, so it becomes impossible to learn about the various committees from that source.

If one were tempted to make a premature assessment, it might appear that Grothendieck's activity in this movement had no lasting results, was both futile and without success, and ended in failure and personal disappointment - in complete contrast to his work in the field of mathematics. In any case, this is how he perceived it himself. But perhaps such a view is superficial. The group undoubtedly made its own contribution, however small, to the establishment of the “green” movement, which at present is firmly anchored in Europe, both politically and socially. And during his time with *Survivre* Grothendieck unquestionably made a profound impression on a number of young people, changing the whole course of their lives. The most prominent of these is probably Gordon Edwards, who is still today (2009) the leading thinker of the anti-nuclear movement in Canada. And in the villages of southern France there are organic farmers who in their youth belonged to the group of Grothendieck's fans and followers, for whom he was something like a Messiah.



6.3 The bulletin of *Survivre*

After *Survivre* was founded, Grothendieck invested almost all of his energy in the undertaking. Looking back on this time in the meditation *La Clef des Songes* (see Chapter 4), he wrote:

For two or three years (between 1970 and 1972) I was one of the main actors in the group "*Survivre et Vivre*" (to which I dedicated myself with an enthusiasm comparable to that which I formerly had for mathematics). As director and editor in chief of the monthly bulletins of the same name, I participated as much as possible in everything that happened in Paris, in the provinces, and also outside of France and especially in the United States where the "counter-culture" was in full swing. I must have spent six to eight hours every day on correspondence concerning our activities, and the rest of the time was dedicated to discussions, primarily meetings and conferences of our group. There were also activities directed towards the outside: public discussions on different topics (all concerning and related to the great crisis of civilization) in the ceremonial rooms of suburban town halls or in remote villages, in research institutes, universities, schools, in the most snobbish and the shabbiest localities, including a small suburban public school with its charming and somewhat bemused children [...]. My title and (on important occasions) my reputation as a

scientific star served as an open-sesame with a certainty that never failed to astonish.

He also wrote that at no other time in his life had he dealt with so many people. As can be seen from this description, Grothendieck's work for *Survivre* was concentrated on two fields of activity: on the one hand editing, and on the other numerous lecture tours, which served both to present the aims of the group to a wider circle and to campaign for the movement.

Let us now discuss the bulletin.

In the years 1970-1975, nineteen issues of the bulletin were published, with a total of around seven hundred pages. The number of copies reached up to ten thousand. There is no doubt that Grothendieck bore the main burden of the editing in the early years. Many of the unsigned articles were written by him, and he wrote others under the pseudonym Diogène. According to Grothendieck himself he wrote the entire first issue of the bulletin himself, possibly both the English and the French versions.

However, even before he moved to Villecun in 1973, his involvement had all but ceased. The immediate consequence was that the bulletin was only published intermittently after that point; only five issues in the years 1973-1975. Of the English edition, thirteen issues are extant (as far as the author is aware) and the last one is dated June 1974.

Grothendieck not only did most of the work but also undoubtedly provided most of the financial backing for the undertaking. The bulletin informs us that he donated all the income from his lectures and lecture tours in 1971 to the movement, a sum total of \$5000, with \$1000 going to the North American section.

In the framework of this biography we cannot deal in detail with contributions to the bulletin. For this, we refer to the work by C. Pessis cited earlier. However, we would at least like to cite the titles of the mostly programmatic articles authored or co-authored by Grothendieck, which render their general tendency and main thrust sufficiently clear. For the sake of completeness we shall include in the list a few articles which Grothendieck wrote on other occasions, but which belong to the sphere of *Survivre*.

- 1) *Les savants et l'appareil militaire*; from the conference documents of the summer school in Montreal, July 1970
- 2) with G. Edwards: *Les savants et l'appareil militaire*; a shortened and reformulated version of 1); Bulletin 1. Au. 1970
- 3) *Compte rendu d'un congrès scientifique*; (report on the ICM in Nice); Bulletin 2/3, Sept./Oct. 1970
- 4) Editorial committee with the participation of AG: *Pourquoi encore un autre mouvement?*; Bulletin 2/3, Sept./Oct. 1970
- 5) with M. Escuder: *Monographies de Survivre*; Bulletin 4, Nov. 1970
- 6) *Comment je suis devenu militant*; Bulletin 6

- 7) *Engagement et Survivre*; Bulletin 7, Feb.-May 1971
- 8) under the pseudonym Diogène: *Ecologie et Révolution*, Bulletin 7
- 9) *Fête de la nature au village de Lesvenant*; Bulletin 8, June/July 1971
- 10) Editorial committee of *Survivre* (de facto Grothendieck): *La nouvelle église universelle*; Bulletin 9 Aug.-Sept. 1971
- 11) *Remous au Collège de France*; Bulletin 9, Aug.-Sept. 1971
- 12) with D. Guedj: *Allons-nous continuer la recherche scientifique?*; Bulletin 10, circa end of 1971
- 13) Editorial committee with the participation of AG: *Vers un mouvement de subversion culturelle*; Bulletin 12, June 1972
- 14) Editorial committee with the participation of AG: *Pourquoi nous sommes opposés à l'énergie nucléaire*; Bulletin 14, Oct.-Nov. 1972
- 15) *Les Pépins de noyaux*; Bulletin 15, continuation 16, winter 1972/73

Of all of these articles, number 12 deserves particular attention, as it represents a sort of ideological manifesto of the group. When giving a talk, Grothendieck frequently handed out copies of similar or almost identical content to number 12. The text also exists in a German-language version, translated by Grothendieck himself on the occasion of a lecture in Berlin in December 1971, entitled "Theories on the theme: Should we continue scientific research?" The following are excerpts from this text:⁴

Since their inception in the sixteenth century, the exact sciences have evolved independently of the true needs and desires of mankind as a whole. Rather, this evolution has been powerfully conditioned by economic and ideological premises and goals, which in turn have been influenced by scientific evolution, in a direction ever more alien to the realities of life. This influence persists not only in the effects of technological progress made possible by science, but also in the justification afforded by the scientific mindset in ever greater measure for the prevalent conditions of life and their ideological premises. In this regard the *over-specialization* of our activities (spiritual as well as physical) must be especially emphasized, and the corresponding *stratification* of society according to so-called "objective" criteria concerning the relative classification of our respective specialties.

The evolution of science has been accompanied, as if by a shadow, by the evolution of a corresponding ideology, *Scientism*, which is today the dominant common ideology of all countries in the world (with some reservations solely for China). It can also be described as the ideology of industrial civilization. It is based on the false doctrine that only knowledge acquired through the correct application of exact, deductive-experimental scientific methods has a solid basis and true ("objective") value, and that these methods and the resulting knowledge represent the only key to the solution of all of mankind's problems. Only the specialist is in a position, within his specialization, to make sensible and accurate statements - this myth of scientism underlies the collective power and the privileges of the technocracy. Thus it follows that scientism is also the ideology at the service of the technocracy, which

⁴ In an accompanying letter to Jürgen Lorenz dated 1 November 1971, Grothendieck excuses himself for his awkward German. Grothendieck uses underlining for emphasis; here these passages will be written in italics.

itself is a willing instrument in the hands of the highest level of political, industrial, financial and military leading classes. [In the French text *patrons*.]

Present day science, in other words the class of scientists as a higher level in the technocratic class, is currently one of the strongest negative forces in the evolution of our society. This can be seen through the following consequences:

1) Science (regardless of the personal motivation of individual researchers) delivers *devastating forces* into the hands of a minority of leaders, which will inevitably be misused over and over again, threatening the survival of mankind in various ways.

2) The *conservatism of the scientific caste* and the false views of scientism, allegedly “based on science”, justify both the dominating societal domestic and international conditions and our industrialized civilization's self-destructive drive, known as “progress”, towards unlimited growth in production, consumerism, the prevalent science and its corresponding self-serving technologies, regardless of the needs and desires of mankind, regardless of the requirements of humanity and justice.

3) Scientific methodology, as practiced today, creates the conditions for alienating relationships (competition, hierarchy, nepotism) between researchers and scientists, and a powerful drive towards elitism and esotericism. These tendencies mirror corresponding tendencies in society as a whole.

4) In the great majority of cases scientific research is not determined by the universal needs of humanity or by the creative drive of the researcher, but rather by social pressures, because achievement is a prerequisite not only for social promotion, but in many cases merely for scraping together a meager living. Research, like studies or money, becomes a goal in itself as an artificial means of social selection and as a weapon in the fight for social status, or for a minimal subsistence level. This reflects a corresponding situation within society. With very few exceptions our entire professional activity is alienating and castrating. As such, it is perfectly designed to make us submit, without critique or volition, to a globally incoherent civilization, which races blindly towards its own destruction.

The industrialized civilization of today will disintegrate in the coming decades, giving way to a new, *post-industrial civilization*, which will be based on completely different human relationships, and completely different technologies, which at all times will be subservient to the goals of humanity. The seeds of this New Culture are already visible today, and can already be cultivated. Successive waves of *cultural revolutions* in the different lands of the east and west could become powerful catalysts of this evolution, such as the Chinese cultural revolution and the French revolution of May 1968, caused by a growing awareness among increasingly broader masses of people of individual alienation and the global incoherence of the prevalent culture.

The development of a New Science will play an important role in this process, which will differ from today's practice in fundamental ways:

1) In the *choice of goals*, which will always be subservient to the needs and desires of all people. The main focus of research will accordingly be agriculture, livestock and fish farming, decentralized energy production for small communities, the arts of healing, development of “lightweight” technologies which use little or no metal or other non-renewable materials - all this while respecting strict ecological guidelines.

2) In the *method*, which will not make any artificial separation between purely intellectual faculties and other powerful ways of gaining knowledge, in particular intuition, sensitivity, the sense of beauty, and the sense of unity and oneness with nature. The disappearance of that strange type, the “specialist”; the research of each individual will be closely related to his daily life and the direct fulfillment of the needs of his family, his community or his people. There will be fusion of spiritual and physical work, in constant contact with the natural environment.

3) In *human relationships* arising from scientific work: the disappearance of hierarchical relationships between specialists (particularly between specialists of intellectual and manual professions); every person (whether primarily a farmer, gardener, shepherd, doctor, technician, etc.) is potentially a scientist and researcher in his primary occupation. The disappearance of scientific centralism; the focus of research will be transferred from the laboratory to the fields, ponds, workshops, construction sites, sickbeds etc., in consequence developing the creative powers of the whole of the people.

At the present time very promising attempts at such a New Science are emerging in China and (in a more modest manner) in America, under the auspices of a group of scientists called the *New Alchemists*, who, with the aid of thousands of farmers, gardeners and craftsmen, have already today set themselves the goal of elaborating and bringing into general use the technological requirements of a post-industrial society.

Science as a game

The first and most pressing goal of the New Science is to permit us to satisfy our most important material needs (nourishment, clothing, housing) without becoming the slave of these needs through exhausting and joyless work. It will be successful in this only to the extent that a large part of the population shall be actively involved in its development and, through its daily practice, become researchers. In this way work will resume its original purpose as a means to the satisfaction of our material needs, and at the same time it can transform itself into a true “practice”, into a fully creative activity, drawing ever closer to the creative *game*, whose goal is itself. The better we succeed in mastering our material needs, the more the game will gain the upper hand in all of our activities, in particular the development of the New Science. When research has completely fulfilled its primary aim as a means to master our material needs, thus divested of its role in social selection and as a weapon of social competition, and when everyone will finally be in a position to devote a considerable amount of their creative energy to the activities of their choice, then the deepening of *knowledge for its own sake* can be taken up again on a healthy basis, without our having to fear that this genuine and deep urge inside us could be perverted once again, or diverted from its true spirit. It is possible that during this later stage the New Science will take up, in a new spirit, some of the main themes of our current science, the majority (if not all) of which will have, in the course of successive cultural revolutions, fallen into more or less self-earned oblivion.

It is certainly not a biographer's mission to comment or to judge this manifesto, about which much could be said. With hindsight, almost forty years later, some will find these theories naive (and perhaps even trivial); at the beginning of the twenty-first century time seems to have left them behind. However, it is possible that one day they will become more central to social debate. In regard to Grothendieck's biography, it can be ascertained that he turned his back in the most consistent and uncompromising manner on the current “industrialized society” portrayed in his text. He was never able to integrate the “post-industrial society” which he foresaw, and of which he dreamed, for the simple reason that that society never evolved...

One point from this manifesto should be given special attention: Grothendieck returned several times to the theme “Science as a Game” later on

(for example in his meditations.)

Article number 5 from the list mentioned above is an example of how unreasonably high Grothendieck's own expectations were for *Survivre* from the very beginning. (One must take into account the fact that the group never had more than fifty or sixty members, not all of who were really active.) Grothendieck envisioned the publication of a series of scientific monographs on the themes of *Survivre*, and take into account the “true” needs of society. Concerning this, article number 5 states:

Here are some [!] themes, which should be covered in at least [!] one monograph of *Survivre*:

1. Ecological balance, 2. Water pollution, 3. Ocean pollution, 4. Air pollution, 5. Soil pollution, 6. Industrially produced food and degenerative diseases, 7. Nuclear pollution, 8. Mental and emotional environmental stress (acoustic, visual, [...]), 9. Overpopulation and birth control, 10. The worker, the first victim of environmental stress, 11. Who pollutes? 12. Weapons, 13. Nuclear weapons, 14. Chemical and bacteriological weapons, 15. Who manufactures weapons? 16. The military-industrial-academic complex, 17. Conscientious objection to military service, 18. Family and traditional schools, 19. Active methods in primary school education, 20. Active methods in secondary school education and career guidance, 21. Active methods in university education, 22. Social revolution: why and how?

It must be admitted that this program is somewhat utopian and megalomaniac. Fittingly, Grothendieck expressed his conviction, during a conversation, that if necessary he could write the monographs on biological topics himself; indeed, mathematics being much more difficult than biology, if he could write books on mathematics he could also write books on biology.⁵

It soon became clear to Grothendieck, however, that in spite of the gigantic program, it was going to be difficult to attract convinced followers in substantial numbers. With a moral rigor typical of him, he wrote in article number 6 of the above list:

In spite of all I remain convinced that it is preferable to have a movement with only one member, who is genuinely concerned and who works as hard as he can towards fixed goals, than ten thousand who do not take the matter seriously and do not do anything [...]

In this respect one of the aspects of *Survivre* must be that we do not limit ourselves to repeating slogans, but that at the same time we constantly gain deeper knowledge through our actions.

To complete the above list of Grothendieck's articles for the bulletin, we will now quote the titles of a further series of typical articles, chosen somewhat randomly. Together they show *Survivre* to be a typical part of the “counter-culture” which flourished at that time.

⁵ Interview with Paul Koosis.

Molly Titcomb: *Révolution pacifique aux Etats-Unis*; Bull. 2/3
Daniel Sibony: *Aux sources de la pollution*; Bull.4
J. Pignero: *L'Association pour la Protection contre les Rayonnements Ionisants*;
Bull. 5
J.F. Gofman: *Pollution radioactive et Atomic Energy Commission*; Bull. 5
René Cruse: *De quoi parle-t-on en disant Non-Violence?*; Bull. 6
Travail du Leader Non-Violent Cesar Chavez; Bull. 6
Daniel Parker: *L'Industrie nucléaire mise en question*; Bull. 6
Diogène: *Ecologie et Révolution*; Bull. 7
P. Samuel: *Le gaspillage*; Bull. 7
Claude Chevalley: *Violence et non-violence*; Bull. 7
Daniel Sibony: *Echec aux Experts!*; Bull.9
Mireille Tabare: *Pour des nouvelles cultures*; Bull. 10
Daniel Caniou: *Agrobiologie: une nouvelle science?*; Bull. 11
F. Ellenberger: *Les formations et les problèmes géologiques du plateau de Saclay*; Bull. 15

Many of the articles in the bulletin deal with internal questions pertaining to the group. In addition there are letters to the editor, and sometimes very interesting book reviews, references to actual current events and, starting with No. 10, comics and cartoons. Often little jokes are scattered about. Listed as a prize in No. 14 are; 2 francs, 50 cents in Canada, and 1 goat cheese for commune members. In later editions all collaborators, correspondents etc. are referred to invariably as members of the *Académie française* or the *Comédie française* respectively. The meetings of the editorial committee and other organizational meetings often took place at Grothendieck's house in Massy. The administrative office used the same address.

As already said above, it would be beyond the scope of this biography to comment further on details of *Survivre et Vivre*. The question as to whether *Survivre* became known to a wider public, and if so to what extent, will not be pursued either. (The newspaper *Le Monde* now and then reported briefly on it.)

Perhaps it is appropriate to conclude this section with a witticism from Bulletin No. 8, although the author does not know if it might actually have been taken from some other text:

"The philosophy of unlimited growth is the philosophy of a cancer cell."

6.4 The English edition of the bulletin

Survivre, which was founded in North America, had staff and supporters from the very beginning, and for this reason the decision was made to publish an English language edition. The content of issue No.1, published in August 1970, is nearly identical in both the English and French editions. Later on the North American Edition progressed slowly. Gordon Edwards, who was responsible for it, wrote to Paul Koosis on 31 January 1971:

The English edition is not in very good shape. However issue 2/3 should be out soon and No. 4 is starting to get put together. One of the great physical problems is that nobody here connected with the movement is fluent and articulate in both French and English. [...] Do you really think the journal in its present form (French edition) is playing a useful role? Do you think it has too much of a tendency to address itself to those who are already more or less convinced? Do you think it is too long to be likely to be read by most people? Do you think it sounds perhaps a little too narcissistic at times? I would like your comments [...]

Despite these misgivings the bulletin continued to appear, doubtless because Grothendieck was in Kingston at the beginning of 1971 and could push things along. The two publications evolved differently. This is hardly surprising, as the North American edition dealt with specifically North American issues, for example uranium mining in Canada and the related problems affecting Native American Tribes. There were frequent reports on other similar groups and actions in North America.

Gordon Edwards, who was in charge of the English edition, handled most of the necessary work. However, he depended on other colleagues for help in translating from French into English. A certain Charles (Chuck) Edwards, a young chemical engineer, temporarily belonged to the editorial committee.

From 1973, when Grothendieck withdrew, the North American edition foundered. The next-to-last issue appeared in March of 1973 and the last one in 1974. This one ended with a rather bleak appeal:

Survival has always supported itself through subscriptions and donations. All work on the paper has been entirely voluntary; no one has ever been paid. Nevertheless, the costs of printing, mailing, and office supplies have to be met. As of now, Survival is broke. If you would like to see it continue, please [...] renew your subscription [...] recommend the paper to your friends [...] send us a donation [...]

6.5 Grothendieck's Lecture Tours

Let us now turn to Grothendieck's second field of activity during these years: his lecture tours. One can only admire the energy with which he made contacts, held lectures, arranged discussions and attempted to gain fellow campaigners. The fact that it has turned out to be impossible to gain an overview of all the talks given by Grothendieck comes as no surprise. Two events that took place in Berlin and Bielefeld in 1971 serve as examples of what they were like.

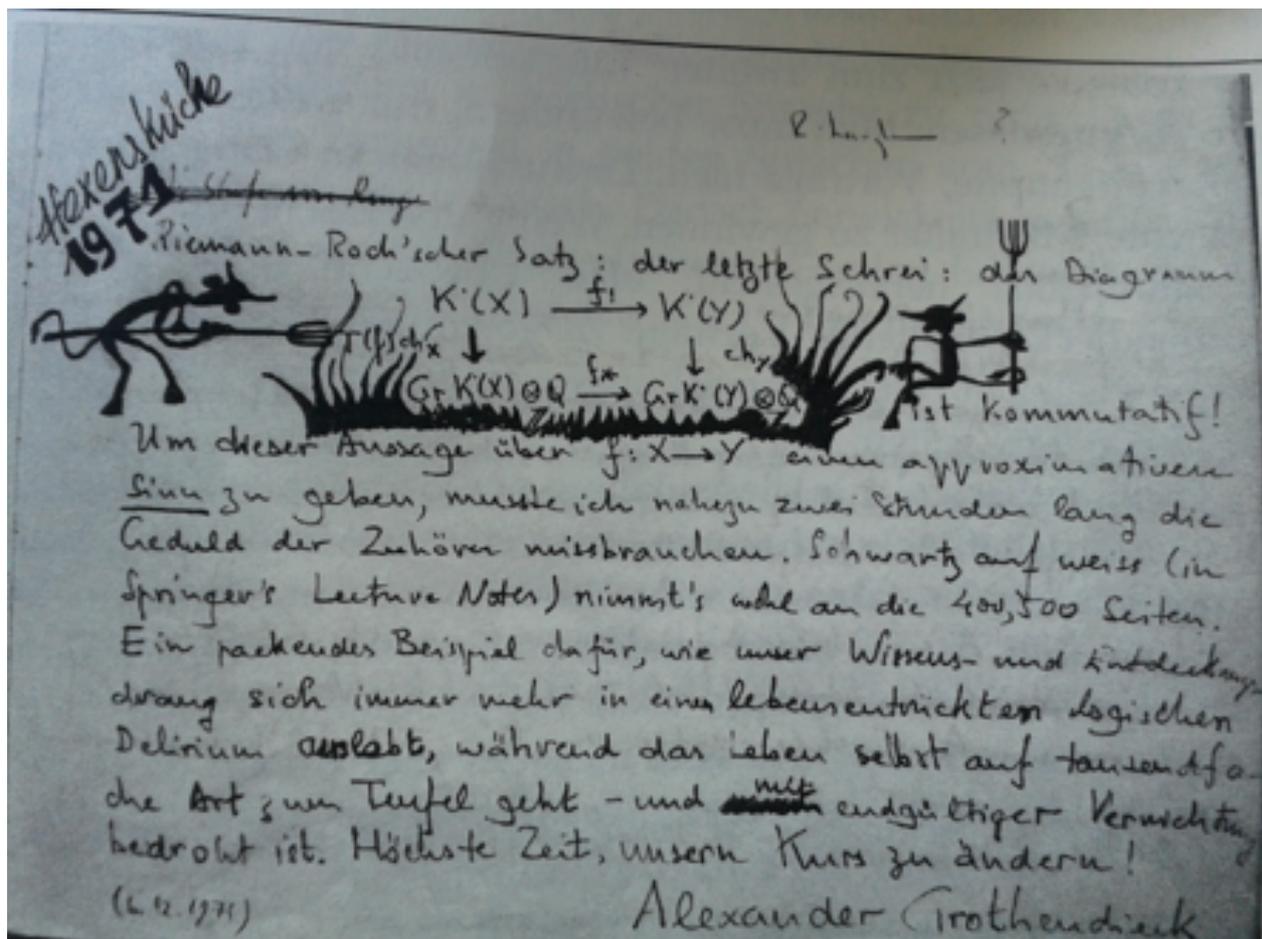
In those days, Grothendieck was still considered to be, as he himself expressed it, a “star scientist”, and as such he was regularly invited to give lectures. He generally accepted these invitations, on the condition that in conjunction with the mathematical lecture he could also give a talk on his ecological goals. Indeed, it appears that in all probability he was invited mostly because of these talks and their “sensational” value.

In December 1971 he gave (at least) three lectures in Germany, one in the city of his birth, Berlin, a second on December 16 at the “Reformuniversität” in Bielefeld, where he was invited by Andreas Dress, a member of *Survivre*, and a third one in Frankfurt. The invitation to Berlin was the initiative of Jürgen Lorenz. At that time he was active in the tendentially Marxist student movement, and he organized a series of events with the title “Mathematics and Society”. Grothendieck spoke on the Riemann-Roch theorem and continued with his standard lecture: “Can we still take responsibility for scientific research?” He especially wanted to speak in Berlin schools, and consequently this was organized. He visited three or four schools, but the students had too much “respect” for the famous mathematician, which prevented a proper discussion. Incidentally, Grothendieck mentioned that he had spent his childhood in Berlin, but now found the city somewhat boring.

In Bielefeld Grothendieck talked for two hours on the Riemann-Roch theorem. A one-hour discussion on subjects concerning the early stages of the ecological movement followed, which eventually took on a more personal character as it continued in a smaller group. In the lecture book of the Mathematical Institute one can find under the title “Witches Kitchen 1971” the following much quoted handwritten entry:

Riemann-Roch theorem: the last scream: the diagram [see image] is commutative! For this statement on $f: X \rightarrow Y$ to make approximate *sense*, I had to abuse the patience of the audience for almost two hours. Black on white (in Springer's Lecture Notes) it takes four to five hundred pages. A dramatic example of how our thirst for knowledge and discovery acts itself out in a logical delirium ever more removed from life, whilst life itself is going to the devil in a thousand ways - and is threatened with ultimate destruction. High time to change our course!

Alexander Grothendieck



It is perhaps appropriate to make a small comment on this entry: the Riemann-Roch theorem of which he writes, is not just any old theorem. It is one of the most important mathematical results of the second half of the twentieth century; it is the theory that, more than anything else, made Grothendieck famous, and remains his most significant individual mathematical achievement. For him to reject his offspring in this way and speak thus of “logical delirium”, something absolutely crucial must have occurred in his life.

In Berlin and Bielefeld, the lectures were followed by fiery discussions that the participants recall to this day, although they give very different accounts of the events. One person felt that technological progress also had a positive side, i.e. one could travel comfortably to Florence by train in order to admire its artistic treasures, to which Grothendieck countered that nothing could leave him more indifferent, and that regular sexual activity was more important to him (he used a thoroughly vulgar word). The wife of the mathematician Krickeberg asked how he could justify traveling to America on an airplane, which also led to flaming exchanges and discussion. And so on and so forth.

Grothendieck was invited to lecture in Frankfurt by Reinhardt Kiehl, at whose house he stayed for two or three nights. Kiehl cannot remember the

content of the talks; the “ecological” talk was probably on the usual themes. Other members of the audience told the author that a mathematician colleague walked out of the lecture hall with the words “I’m not listening to this sermon anymore!”, and that during the discussion Grothendieck challenged Friedrich Stummel, who apparently was of a different opinion, with the exclamation, “Herr Stummel, sie sind verstümmelt!”⁶ After the lecture a small group met in Kiehl's apartment. On this occasion a bed broke under the weight of those sitting on it, and was propped up very fittingly with piles of EGA and SGA, which elicited from Grothendieck the remark that at least these works were good for something.

In that (long past) time many mathematicians cultivated a rather bohemian appearance; it was still the time of the student revolution and the beginning of Red Army Faction terrorism. And thus Grothendieck's visit had a rather grotesque aftermath. Shortly after his departure in the early morning, a detective showed up at Kiehl's home, explaining that he had received a tip-off that members or sympathizers of the Baader-Meinhof Group were staying there. Kiehl was able however to clarify that the person in question was merely a world famous mathematician, and the detective politely took his leave.

Detailed information about Grothendieck's lectures in France is available starting from 1972. From this time onwards, supplements to the bulletin appear now and then, which mostly deal with internal affairs of the group. The following activities are recorded in the *Bulletin de Liaison*:

01/16 - 01/23/72 Grothendieck's trip through Bretagne, in order to set up various local groups; contacts with a commune in Le Mans.

01/27/72 Lecture by Grothendieck followed by a discussion at CERN in Geneva on the theme “Can we continue with scientific research?”

01/28/72 Similar event at the University of Orsay.

02/10/72 Lecture by Grothendieck followed by a discussion on the same theme at the Quaker International Center in Paris.

02/28 - 03/04/1972 Lecture tour by Grothendieck through Clermont-Ferrand, Limoges, Bordeaux.

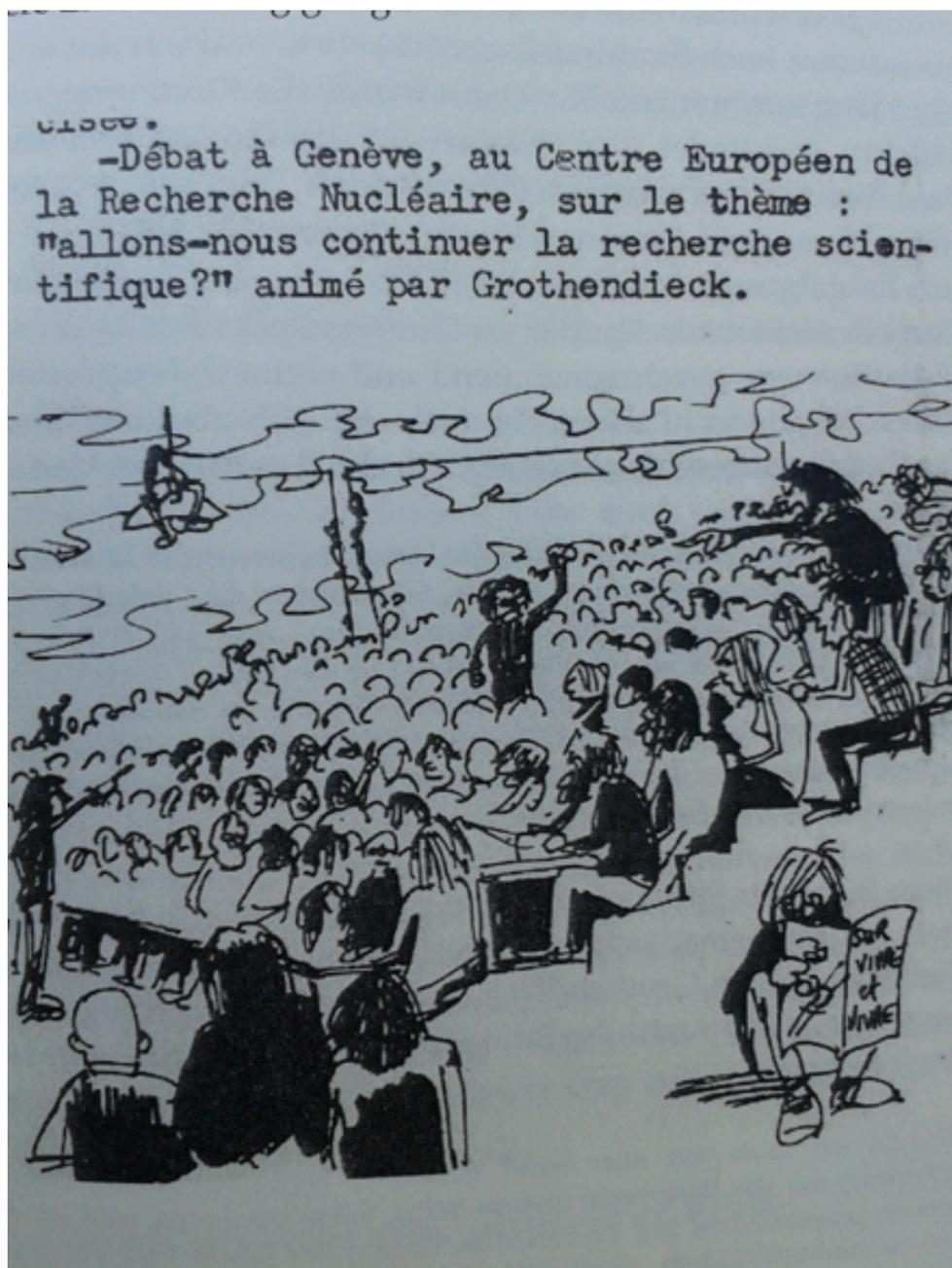
Shortly afterwards a trip to Marseille, Nice and Nîmes was planned, but there is no record as to its actually having taken place.

In March and April 1972 Grothendieck visited schools in, among other places, Meudon, Clichy, Tours, Toulon, Marseille, Montpellier, and Lodève, in general accompanied by one or two comrades. Numerous localities possessed small groups with goals similar to *Survivre*; contacts were made and work in

⁶ Stummel means “stump” in German, so the pun could be rendered as “Mr. Stump, you’re stumped!”

collaboration was organized.

Presumably all this formed only a part of Grothendieck's program, which was put together more or less haphazardly. Altogether there can be no doubt, as he himself emphasizes, that in practical terms he put all of his energy at the disposal of the movement which he created. It can hardly be surprising if his comrades did not throw themselves into the task with equal enthusiasm and the same seemingly inexhaustible energy. And thus once again, as happened so many times in his life, the seeds for a deep disappointment were sown.



6.6 The End of *Survivre*

During the course of the year 1972 Grothendieck's dedication to *Survivre* lapsed considerably. There does not seem to be a single, decisive cause for this, but rather a combination of factors. The author has consulted several fellow campaigners from that time, and no one could name any really vital reason for this new turning point in Grothendieck's life.

At first glance there are some obvious reasons. From the beginning of May to the middle of July he was in the USA (see Chapter 8) so that his activity in France, in particular his work as editor, was interrupted. On this trip he met Justine Skalba, who returned to France with him, and with whom he lived for about two years. Then the commune in Châtenay-Malabry was founded (see Chapter 9), which occupied him intensively. The fact that this experiment ended in chaos certainly didn't help Grothendieck's already faltering commitment to *Survivre*.

There were also ideological disagreements about the direction that *Survivre* should take. Parallel to Grothendieck's withdrawal, the movement became increasingly radicalized, thus losing prominent and active members. Laurent Samuel, the son of Pierre Samuel, who had joined the movement as a journalism student, wrote to the author concerning this:

In the meantime Guedj and his friends followed a very radical line, which was influenced by the "Situationists". They believed that every concrete ecological action was a "compromise with the system". I was accused by some (not by Guedj, he was too clever for that) of "treachery", because as a young journalist I began to work for such journals as *Le Sauvage* or *La Gueule Ouverte*, where the staff were actually paid (what a scandal!). For this reason my father, I and a few others left the group and joined other groups such as *Les Amis de la Terre*.

This view of the situation was confirmed by Jacques Sauloy, then a mathematics student who belonged to the group of "radicals". Perhaps Grothendieck referred to these ideological differences of opinion when, sixteen years later, he reminisced in *La Clef des Songes*:

Although I committed myself with the utmost energy, my reflections only touched the periphery of my existence. No doubt because I dimly perceived this, I gradually withdrew during the year 1972 from anti-militaristic, ecological and "counter-cultural" activities, since I felt that we had reached a point where we were stuck in routine engagement instead of integrating ourselves into a bigger movement [...]

All in all it is not clear which way Grothendieck would have leant, towards the "Situationists" or towards the "Pragmatists" (or neither). One is compelled to read these remarks with some skepticism. In *La Clef des Songes* Grothendieck looks back at his life as a "spiritual journey", a journey towards a "loving God"

[Le bon Dieu] and all events are described, observed, and judged from this point of view.

In connection with this, Laurent Samuel mentions another of Grothendieck's subjects of interest at that time. He would often speak of a “guru” by the name of Abd-Ru-Shin. It is not certain that this has anything to do with his withdrawal from *Survivre*, but Samuel certainly felt that Abd-Ru-Shin, of whom he knew absolutely nothing, had for a short time become an important point of reference in Grothendieck's life.

Who is Abd-Ru-Shin? The reader can easily find out on the internet. The name was the pseudonym of Oskar Ernst Bernhardt (1875-1941), the founder of the so-called “Grail Movement”, which for a time garnered quite a following. It is not a religious sect, but a spiritual movement, not really connected to any religion, but which rather calls upon one to act on one's own responsibility and to seek the way to a spiritual and ethical life. Grothendieck comes very close to these ideas in some of his later meditations. Nevertheless his interest in the movement appears to have been short-lived. Abd-Ru-Shin is never mentioned either in *Récoltes et Semailles* or in *La Clef des Songes*. Grothendieck's German friends G.J. and E.I. can recall that at a much later date his name did come up occasionally, and that they once visited a “colony” of the Grail Movement, or at least planned to do so

There is not much more to report on the further destiny of *Survivre*. Presumably this is typical for many similar groups from those years. As already explained, *Survivre* became increasingly radicalized around the time when Grothendieck withdrew, and lost some prominent and active members. Not later than 1975 it finally collapsed (or more probably it fell quietly asleep).

6.7 The comrades of *Survivre et Vivre*

In different parts of *Récoltes et Semailles*, Grothendieck names a few people for whom he felt a particular attachment and gratitude while working for *Survivre*. These are Claude Chevalley, Pierre Samuel, Denis Guedj, Daniel Sibony, Gordon Edwards, Jean Delord and Fred Snell. Regarding this he makes the following remarks:

Of these friends five are mathematicians, two are doctors and all of them are scientists - which seems to indicate to me that the milieu to which I felt the closest in those years was still a scientific one, and above all one of mathematicians.

Grothendieck certainly also had close contact with other comrades of *Survivre* such as Paul Koosis, Felix Carrasquer and his wife Matilde Escuder, Laurent Samuel, Robert Jaulin and William Messing.

Of all those listed, it was Claude Chevalley (1909-1984) with whom Grothendieck maintained the longest relationship. He met him during his first year in Paris, and soon after at Bourbaki meetings. Chevalley had studied in Paris and also for a few years in Germany under Artin and Hasse. He spent World War II and the postwar period in the USA, first in Princeton, then at Columbia University in New York. He also acquired American nationality. In 1957 he returned Paris to work at the University of Paris 7. His most important work deals with Lie groups, the classification of semi-simple algebraic groups and “Chevalley groups”. In the fifties he headed a series of seminars, sometimes together with Henri Cartan. In one of these seminars the idea of schemes emerged for the first time. (During this seminar Grothendieck apparently asked, “What is a scheme?”)

Chevalley was always a “leftist” and an oppositionist, and belonged to different avant-garde groups. The six volumes of his Collected Works also include non-mathematical (mainly political) publications. Grothendieck writes often and very warmly of Chevalley in *Récoltes et Semailles*, and one frequently has the impression that Chevalley, twenty years his senior, became something of a father figure to Grothendieck. Regarding *Survivre*, the following lines are of interest⁷ and give a hint of the reasons for which *Survivre* would soon fail:

It seems to me that at the beginning of the seventies, when we used to meet regularly for the publication of the Bulletin *Survivre et Vivre*, Chevalley tried, without insisting too much, to communicate a message to me, which I was either too clumsy or too wrapped up in my own militant tasks to understand. I dimly realized that he had something to teach me about freedom - inner freedom. While I had a tendency to function along the lines of grand moral principles, and had started to blow that particular horn in the very first issues of *Survivre*, he on the other hand had a particular aversion for moralizing sermons. I think it was the thing about him that most unsettled me, at the beginning of *Survivre*. For him, that type of speech was simply an attempt at constraint [...]

Another old acquaintance was Pierre Samuel (1921-2009) who, like Chevalley, had spent some of the war and post-war years in the USA. Samuel said that he first met Grothendieck at Bourbaki meetings, presumably in the fifties. Samuel, like so many French intellectuals, was a “leftist” who spoke out energetically on political questions. He joined the group *Survivre* about one year after it was founded, and took over some of the administrative roles, such as that of treasurer and editor of Bulletin No. 15. Grothendieck writes in *Récoltes et Semailles* that Samuel assumed with elegance the role of “appalling reformist” within a group which was becoming increasingly radical. But Samuel did eventually come into conflict with the politics of *Survivre*. In Bulletin No. 16 he explained:

⁷ *Récoltes et Semailles*, Fatuité et Renouveau, p. 25.

I am leaving *Survivre et Vivre*. Essential divergences in relation to convictions and style between the group *S et V* and myself lead me to believe it advisable that I withdraw. As of now I am no longer responsible for publications and activities of *S et V* [...] Good luck to the “survivors”. And in all friendship. Pierre Samuel

Samuel's resignation from *Survivre* did not mean, however, that he resigned from work on “green” (ecological) politics, but quite the opposite. He joined *Les Amis de la Terre*, the French chapter of the movement Friends of the Earth, founded in 1969. This movement describes itself as one of the biggest grassroots networks in the field of peace and environmental protection ever, with organizations in over seventy countries. Samuel was president of the French chapter for many years. He also wrote several books on ecology and global warming.

Samuel's son, Laurent Samuel, who joined the group *Survivre* as a student, later became a journalist and even now, in 2009, is still involved in publications on ecological themes. He left the group more or less at the same time as his father, because of the domination of the “Situationists”.

Of all the people in Grothendieck's list, Denis Guedj (1940-2010) became quite the best-known outside of mathematical circles. He studied mathematics, and was a teacher of mathematics in Paris until his death. The primary focus of his activity, rather than mathematical research, lay in the direction of pedagogy and didactics. His main objective was to make mathematics accessible to onlookers and laymen through appropriate events. He made a name for himself by writing numerous novels in which mathematics or the history of mathematics plays an essential role. These novels all have the same purpose, namely, to awaken an interest in mathematics. In Germany his book *The Parrot's Theorem* has become the most famous, a bulky tome dealing with all of mathematical history, but which is somewhat artificial and not especially successful from a literary point of view. According to Grothendieck, Guedj had a strong influence on the group's direction, and he led it for another two years after Grothendieck's departure. The last known issue of the bulletin, edited by Guedj, dates from 1975.

Daniel Sibony has an interesting biography. He was born in 1942, the son of a Jewish family in Morocco, but at the age of thirteen came to Paris where he later studied mathematics and became a professor. While working as a professor he also earned a doctorate in philosophy. He also worked as a psychoanalyst starting in 1974. He is the author of many books dealing with various themes concerning cultural studies and psychoanalysis. He told the author that he had never found the goals of *Survivre et Vivre* to be really convincing. Rather, his interest in the group stemmed from a personal interest in Grothendieck, whom he felt to be vulnerable and even in need of protection. This is without doubt a

very unusual observation; the author cannot recall anyone else expressing him or herself in a similar manner. Much later, Sibony was asked by a publishing house to give his opinion on *Récoltes et Semailles*. He found the text extremely repetitive, paranoid, and “boring”. That too is an unusual judgment. In a certain sense, these remarks fit well with what Grothendieck wrote about Sibony in *Récoltes et Semailles*, namely that he kept his distance from the group and observed its goings-on out of the corner of his eye, half contemptuously, half amused.

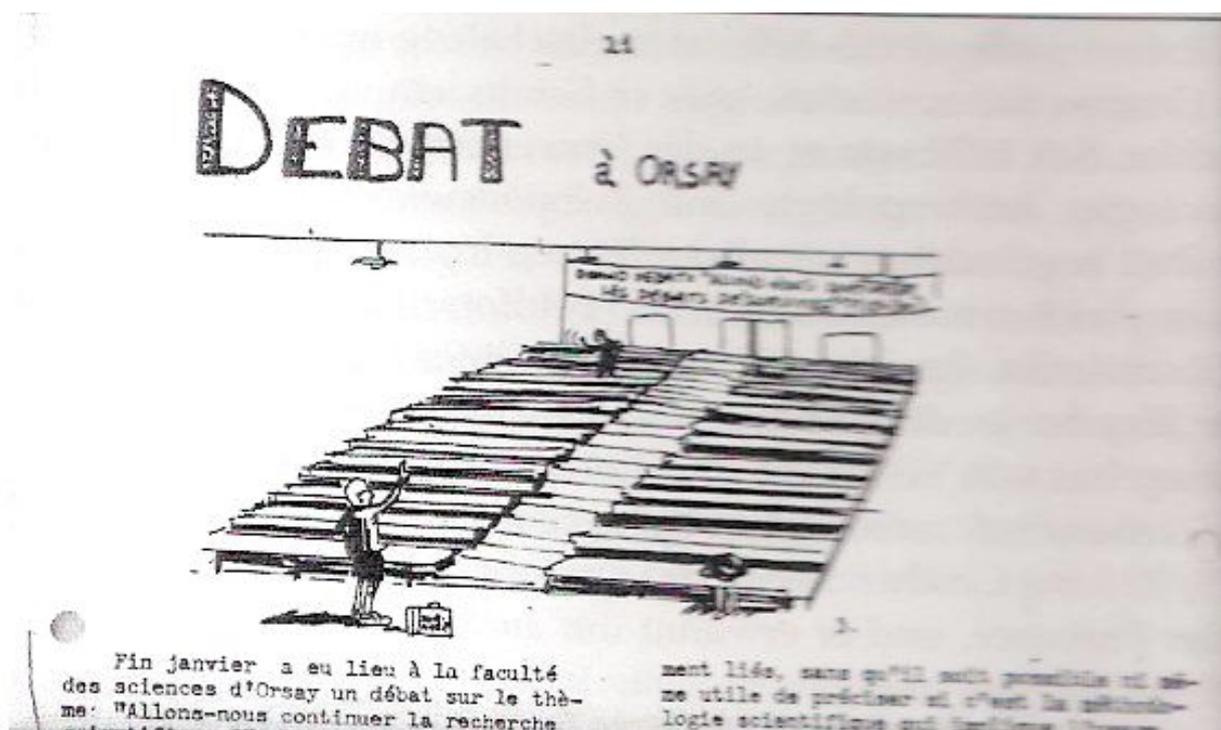
Fred Snell (1922(?)-2003) was described by Grothendieck as a doctor. He had indeed studied medicine, but since 1959 he had been a professor of biophysics at the University of Buffalo. He had belonged to the Atomic Bomb Casualty Commission, which had investigated the effects of the atomic bomb on the population of Hiroshima and Nagasaki. His obituary states that his research interests included climate models, alternative and renewable energy, and environmental problems. He was a prominent anti-war activist, and belonged to the somewhat amorphous “leftist scene” at the University of Buffalo. He expressed himself on social and political questions in many publications. Grothendieck first met him at the beginning of March 1971 on his short trip from Kingston to Buffalo. He wrote to Koosis that Snell had joined a sub-group of the American Biophysical Society which was also named Survival, and which played a similar role to the Mathematics Action Group within the American Mathematical Society (AMS). During his trips to North America in 1972 and 1973, Grothendieck reported that he spent several months at Fred Snell's weekend house. (In actual fact it can only have been a few weeks.)

Jean Delord (1920-2002) came from France. He was arrested during the Nazi occupation, but succeeded in escaping and joining the Résistance, helping many people escape to Spain using forged documents. He then emigrated to the USA, earned a Ph.D, in physics at the University of Kansas, and worked for most of his professional life as a professor of physics at Reed College in Oregon. The author does not know how he first became acquainted with Grothendieck.

When Robert Jaulin (1928-1996, born the same year as Grothendieck) joined *Survivre*, he was already a well-known scientist. Since 1970 he worked at the University of Paris 7 as a professor of ethnology, anthropology and religious studies in an interdisciplinary institute that he founded himself. He became known through his ethnological fieldwork in Chad and in South America. In 1970 he published *La Paix Blanche*, one of his main works, describing the ethnocide of the Bari people on the borderland between Venezuela and Columbia. He must have kept in touch with Grothendieck long after *Survivre*. Indeed, in 1979/80 Grothendieck lived in Jaulin's vacation house for about a year. He mentions Jaulin in the introduction of *Récoltes et Semailles* and also in

a few other places. Jaulin compared Grothendieck's portrayal of the world of mathematics and of mathematicians in *Récoltes et Semailles* to an ethnological study.

The first seven issues of *Survivre* do not contain any drawings, caricatures, comics or cartoons. Beginning with No. 8 in June/July 1971, though, the external appearance of the bulletin was considerably altered through the regular contributions of the twenty-year-old Didier Savard. It would seem that his subsequent successful career as *scénariste-dessinateur* began with *Survivre*. In a short resumé, Savard names *Survivre* as the first periodical in which he published. The comics that he published later in his career - in particular the ones about a character called Detective Hérisson - were also translated into German, and other languages. As a writer, he seldom contributed anything to *Survivre*. It is the author's opinion that Savard's trenchant and biting cartoons substantially enrich the bulletin and visually complete the sometimes dry and academic, often overly theoretical discourse. Savard also poked fun at Grothendieck's activism. In bulletin No. 11 there is an account of an event in Orsay on Grothendieck's standard theme: "*Allons-nous continuer la recherche scientifique?*" The corresponding caricature depicts Grothendieck - recognizable by his bald pate and shorts - standing before an almost empty lecture hall with two people fast asleep and a third about to object. In the background a large banner is displayed: *GRAND DEBAT: "ALLONS-NOUS CONTINUER LES DEBATS DE 'SURVIVRE'?"*



Grothendieck thoroughly appreciated and approved of Savard's contributions. He wrote: "The juicy drawings of Didier Savard certainly contributed a lot to the relative success of our rag"⁸.

The name of one of Jaulin's students, Thierry Sallatin, also appears in the bulletin *Survivre*. His life, which is entirely comparable to Sascha Schapiro's for drama and adventure, will be briefly described in the next and last volume of this biography. Yvonne Verdier was another student of Jaulin, and the wife of Grothendieck's student and colleague Jean-Louis Verdier. She took part, among other things, in a "propaganda tour" through the French provinces for *Survivre*.

Working with *Survivre* probably had the most lasting influence on the life of Gordon Edwards (born in 1940), apart from that of a few organic farmers in Southern France who never gained public attention. He says himself that his meeting with Grothendieck gave his life a completely new direction. During his work with *Survivre*, Edwards received his doctorate in 1972 at Queen's University in Kingston under Ribenboim. He wrote his thesis, entitled "Primitive and group-like elements in symmetric algebras" in less than a year, and submitted it in February 1972. In the acknowledgements he wrote: "Thanks are due to Alexandre Grothendieck not only for suggesting a topic, but also for opening my eyes to the social responsibilities that we all have." The subject of the dissertation was closely related to Grothendieck's lecture in Kingston, in that it proceeded from a question about infinitesimal group-schemes of height 1 in characteristic p . One could count Edwards as one of Grothendieck's unofficial doctoral students, even though Grothendieck did not write a referee report on the thesis.

After *Survivre* dissolved, Edwards was one of the founding members of the Canadian Coalition for Nuclear Responsibility, an organization that is still active today in 2009, and of which he is now president. In the context of this activity he has become well-known, with numerous newspaper articles, television and radio interviews. His advice is sought as an expert and consultant on such matters as radioactivity, nuclear waste, uranium mining, nuclear proliferation, and so forth. He did not aspire to a career in research, but worked for most of his life as professor of mathematics (notably analysis) at Vanier College in Montreal.

Reviewing this list of people, with the addition of a few more (such as F. Carrasquer and M. Escuder) about whom more will be related later on, one can

⁸ *Récoltes et Semailles*, La Clef du Yin et du Yang, p. 758.

observe that gathered together under the umbrella of *Survivre* was a group of people with multiple interests and widely different concepts of life. One might think that Grothendieck could have found open-minded discussion partners here. This may sound a little trite and hackneyed, but one cannot avoid the impression that after the “great turning point”, he was on a quest for his true destiny, for the “meaning” of his life. In the work for *Survivre et Vivre*, a grand and honorable endeavor, surrounded by sympathetic fellow comrades, could he not have found the goal of his quest?

6.8 The Survival of Mankind

In October 1970, Grothendieck wrote a letter to a German acquaintance, in which fundamental aspects about his commitment were expressed in a pointed and very personal manner. This was at a time when the vigor of his first enthusiasm was still whole, and yet the first signs of trouble and opposition were already discernible.

The reasons you give in order to predict that the movement will not be a success are all known to me. Moreover, I am not counting on a snowball-type success, as you say, but am prepared for patient and tenacious work; [...] Such work can *never* be in vain, - not even, in my opinion, if mankind should disappear in the next twenty or thirty years. In fact, I don't believe that the prospect of success is a necessary prerequisite for doing what is right. I must admit that up to now the impression I have gained is that the prospect of mankind's survival is but a slight one. [...] What remains certain is that the possibility of surviving rests with those who have understood the problem of survival in all its dimensions and urgency, and who set themselves the task of fighting undauntedly for survival. From this perspective, the reasons you give for not wishing to join this endeavor naturally appear totally futile to me. Like almost everyone else with whom I have spoken about this issue, you completely ignore the issue of survival, as if it were a rhetorical phrase used to embellish I'm not sure what other motives and goals. The question, however, is this: either you recognize the critical dangers which render our survival problematic, and in that case you also recognize that the analysis of Klein singularities, raising the mathematical and technological level in Cuba, or learning the Spanish language are all of utterly trivial interest in comparison to the task of fighting for the survival of us all, or you do not recognize the existence of these dangers. But then the question as to whether you join *Survivre* or some other group with similar leanings can hardly be asked.

The skepticism towards orthodox political leftists which is expressed in this letter is even more obvious in another one, dating from December 1970:

In any case I do not have the impression, from the standpoint of survival value, which is more important to me than anything else, that marginal aid for the industrialization of a far distant and underdeveloped country such as Cuba can be very positive. I am not yet completely clear as to whether it is not perhaps rather negative. In any case you would certainly have more opportunity for positive impact if you would fight against irrational and self-destructive

technological overdevelopment where you live and work. [...] Your long-winded reflections with the conclusion⁹ that we cannot do anything anyway because we are too dumb - could they not just as well include your Cuban efforts? Admittedly it is easier to industrialize a country than to deindustrialize it - just as it is easier to bump somebody off than to bring them back to life.

As these letters already contains hints of this, now is perhaps the right place to highlight that in spite of all the abrupt twists and turns in Grothendieck's life after 1970, there was a fixed point in his eschatological world view, namely the belief in an impending apocalypse, the end of our civilization, a last judgment. At first he thought that nuclear weapons were the greatest danger, and that they would lead to the extinction of the human race, but later he spoke of the problem of overpopulation, considered as part of a vast ecological crisis. When even later he turned to religious speculation, he came to the conclusion - which will be described later in this volume - that God's Last Judgment was imminent, and thus it would not be the self-destruction of mankind, but rather a destructive act of God (of “le bon Dieu”), which would then usher in a “golden age”. As different as these expectations may be, Grothendieck never stopped seeing the apocalypse looming on the horizon.



⁹ Grothendieck uses, perhaps by mistake, the word “Exitus”.