

Visiting Alexandre Grothendieck

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In May of 1988 I was living in Neunen, Holland, as the guest of a friend, electrical engineer and particle physicist, Dolf van Rede. On the morning of May 5th I boarded a train in Eindhoven that would take me to Brussels, from which I could continue on to Paris. Waiting in the Brussels station for the train to Paris to arrive, I bought that day's copy of *Le Monde*. Little did I realize how significantly a single item would affect my stay in Europe that year, and for many years to come.

The letters page of *Le Monde* contained a copy of the letter that had been sent by Alexandre Grothendieck, one of the world's great mathematicians, to the Swedish Academy of Science. This letter (A translation is given below) enumerates his reasons for refusing the highly prestigious Crafoord Prize in mathematics.

The Crafoord Prize had recently been established by the Swedish Academy to honor achievements in mathematics, astronomy, the geosciences and biology (with an emphasis on the cure of polyarthritis). The first 3 fields were not included in Alfred Nobel's will. An apocryphal story has it that Nobel held a grudge against mathematicians because his wife was having an affair with the mathematician Mittag-Loeffler. Another theory is that Nobel believed that mathematics was a science with few practical applications.

Between 1950 and 1970 Alexandre Grothendieck had produced a deluge of brilliant work in Algebraic Geometry and related disciplines. His reputation for mathematical genius is complemented by another, that of extreme eccentricity shrouded by mystery, the sort of personality that encourages the agglutination of legends and anecdotes, true, false or fabricated. Several years before his retirement from the Université Paul Valéry he'd isolated himself in a cottage at an unknown location in the south of France. The introductory paragraph to the letter published in *Le Monde* reads:

French Mathematician Alexander Grothendieck Rejects Crafoord Prize

" The French mathematician Alexandre Grothendieck, who won the Fields Medal in 1986, the equivalent to the Nobel Prize in mathematics has just rejected the Crafoord Prize awarded him by the Swedish Academy of Sciences. (Le Monde, April 17-18) . This prize, worth 1.5 million French francs (Note: \$250,000 at the current rate of exchange) which he was expected to share with one of his former students, the Belgian Pierre Deligne has, since 1982 been rewarding research scientists working in the disciplines of mathematics, earth sciences, astronomy and biology. The French geophysicist Claude Allegre figured among its laureates in 1986. In the following text, addressed to the perpetual secretary of the Swedish Royal Academy of Sciences, M. Alexandre Grothendieck explains the reasons for his decision. "

The reasons given by Alexandre Grothendieck for his action included several classical ones, and some surprises. Among the former (like that of J.P. Sartre for rejecting the Nobel Prize (too politically compromising) , or Mother Teresa ("I am not worthy")), were that such prizes always seem to go to persons who don't need them; that a lot of publicity surrounds the announcement of the prize before the recipient is informed of it; that it is taken as a foregone conclusion that it will be accepted, giving the recipient no choice in the matter; that only time can tell the real value of scientific work; and so on.

Other arguments were more personal. The research for which Grothendieck was being awarded the prize had all been before 1970. Since that time a systematic corruption of the values of science has occurred, through greed, plagiarism, militarism and other causes. He therefore was concerned that his acceptance of the prize would automatically be interpreted as an acceptance of the status quo.

Most surprising was his belief that cataclysmic changes were about to occur before the end of the 20th century. An unparalleled Holocaust would be followed by a Golden Age in which the very concept of science would become irrelevant, even trivial. .

I was delighted. At all costs I knew that I had to find him and speak with him.

Translation of Alexandre Grothendieck's Letter to the Swedish Royal Academy rejecting the Crafoord Prize

" I am very touched by the honor bestowed upon me by the Swedish Royal Academy of Sciences. This honor, to be shared with my former student, Pierre Deligne, comes with a large sum of money. However I regret to inform you that I don't accept this prize, (nor any others for that in fact) . These are my reasons: .

(1) My professor's salary, combined with my pension beginning in October, is, by far, more than enough for my needs and for those to whom I am responsible. In other words, I don't need the money. As for the esteem accorded to certain research that I've done on the fundamentals of mathematics, it is my strong conviction that the only decisive test of the viability of an idea, or of a new vision of the world, is that of time. The fertility of an idea is to be judged by the quality of its offspring, and not through honors. .

(2) In addition I've observed that those research workers at high levels to whom prizes like the Crafoord Prize are given, have already attained to such a level of eminence in society, that they have more than they need of material benefits and prestige among their colleagues, as well as the authority and perks that accompany these things. Is it not obvious, however, that these excessive rewards to the few must come at the expense of the many? .

(2) (sic. A misprint) Those labors which now earn me the approbation of the Royal Academy were carried out 25 years ago, at a time when I was still integrated into the scientific milieu and shared both its worldview and its values. But I departed from this milieu in 1970. Since then, while not in the least renouncing my passion for scientific

research, I have continued to put some distance between myself and scientific circles.

In the two decades that have intervened the ethical standards of the sciences (certainly in mathematics) have been degraded to such an extent that the most bare-faced plagiarism between colleagues (often at the expense of those who can't defend themselves), seems to have become the norm. At least it is generally tolerated, even in exceptionally flagrant instances. .

Given this situation, were I to agree to enter into the game of prizes and rewards, it would be equivalent to my giving stamp of approval to a state of affairs in today's sciences that I see as being profoundly unhealthy. Their spiritual state, even their intellectual and material states, are nothing less than suicidal, hence they are destined to vanish in the near future. .

It is this third reason which, for me, is the most compelling. If I've gone out of my way to make an issue of it, you should not thereby conclude that I intend any criticism of the Royal Academy, or in its administration of the funds under its command. .

I firmly believe that we can expect totally unprecedented upheavals before the end of the century which will transform, from top to bottom, our very notion of what is called "science", or its objectives, and the spirit in which it is done. I am certain that the Royal Academy will be among those institutions, and individuals, who will have useful roles to play in a rejuvenation without historical precedent, after a total destruction of civilization also without historical precedent. .

I deeply regret the difficulties I am causing the Royal Academy through my rejection of the Crafoord Prize. A great deal of publicity has preceded the announcement of this award, although it was not deemed necessary to first ask the permission of its laureates. This despite the fact that I've done all I could to make my ideas known in the scientific milieu, above all to my old friends and students in the world of mathematics, with regard to that milieu and the "official" science of our times. .

I direct your attention to a long memoir, " Recoltes et Semailles" , dealing with my life as a mathematician and the nature of creativity (scientific creativity in particular). This text has, without any intention on my part, grown into a "novel of manners" of the mathematical world between 1950 and the present. While awaiting its publication as a book, a small pre-printing of 200 copies, produced at my university, has been distributed among my mathematical colleagues, algebraic geometers in particular, (those who are kind enough to still remember me.) May I be permitted, by way of passing along information, to send you the first two (introductory) volumes under separate cover."

Upon my arrival in Paris I rented a room in the Hotel Telemaque, in Montparnasse on the rue DaGuerre. A few days later I visited the offices of the flashy left-scented magazine , Le Nouvel Observateur. An interview with the editor Francois Schlosser was quickly arranged. He warmed to the idea that I wanted to

uncover the whereabouts of Alexandre Grothendieck and believed that he could easily get authorization for me to do an interview with him.

In a few days I received a call at my hotel. Schlosser had consulted with the editorial board of *Le Nouvel Observateur*. They'd agreed to cover the travel costs involved in locating and visiting him. If an interview emerged from our meeting they would pay for that as well.

It quickly became apparent that finding Alexandre Grothendieck's wasn't going to be easy. Francois Schlosser looked for a telephone number for him on a Minitel machine in the offices of the magazine. His phone, if in fact this notorious hermit bothered with such contrivances, was unlisted.

For several days before my departure to the south of France I aunted the corridors of the Institut Poincar, a famous mathematics research and teaching center on the Rue d'Ulm. The verdict there, from secretaries, teachers and researchers alike was unanimous; nobody knew anything about where Alexandre Grothendieck had been living for the past decade. The most they could say was that he did answer letters written to him care of the Mathematics Faculty at the University of Montpellier.

At the same time I tried to find a copy of his 2000 page memoir *Récoltes et Semailles* (Reaping and Sowing) mentioned in the letter to the Swedish Academy. Rumors were already spreading about this book, which, it was claimed, included a sensational exposé of corruption, nepotism and every kind of malfeseance in the activities of the mathematical community over the last 30 years.

There was nothing secret about the book itself. For the past several months Grothendieck had been printing up copies of all of its volumes and mailing them out to former friends and colleagues, no doubt the very same people attacked in its pages. At the Institut Poincaré I was able to find one mathematician who'd received his personal copy directly from Grothendieck. He'd already sent it along to a friend.

Descriptions of the adventures and several of the episodes of my journey through France in search of Dr. Grothendieck can be found in the companion piece "Travels in southern France with backpack and fiddle, summer 1988", which will be uploaded onto Ferment Magazine when it is ready. The story recounted here picks up with the narrator's experiences in Montpellier and at the Université Paul Valéry:

The latter part of May, 1988, shortly after dawn grey clouds in a blue sky, interweaving patches of white ... drizzle scattering like sparks on the black asphalt of empty streets ... winds of ambiguous origins across a plaza dense with umbrellas... crabbed faces filling the terraces of the sidewalk cafés

A man sat on a short bench in a corridor of the Montpellier train station. He was writing in a notebook. As it resembled both prose and poetry, it attracted the attention of passengers and personnel strolling to and from the building, entering the cafeteria or riding the escalators to the bus station at the upper level, the Gare Routière.

The Montpellier Book Fair, the largest in southern France, was scheduled to open that morning, in tents already erected in the vast Place de la Comédie. Before the Baroque fountain (just that moment) throwing off jets of water against the uncertain rain, a charming red umbrella, glowed like a carnation in the lapel of *aflaneur*.

This individual was invested with a curious mission: to bring to earth a mysterious recluse, some might even call him a hermit, a certain Grothendieck, (Alexandre), whose reputation as a formidable mathematician, was thickly shrouded in numerous legends, which made it impossible to assert anything about the man with the authority of fact. It was known, courtesy of the newspapers, that he had recently rejected a prize from the Swedish Academy worth almost 800,000 francs, thus enhancing his aura of fame in inverse proportion to his enigmatical obscurity and doubling the number of myths circulating about him.

The foreign correspondent introduced himself to the two secretaries of the Mathematics Department at the Université Paul Valéry, as a someone who took delight in revealing the secret retreats of persons who have the audacity to feel that they can influence the world without being contaminated by contact with it.

" Does Dr. Grothendieck still work here?" The elder secretary replied:

" He is officially employed by us for another year when he takes his retirement, but he no longer visits the faculty." She turned to her associate:

" How long has it been since Alexandre last stopped by ?"

" 3 years." The spontaneous response suggested that she had often been asked this question.

" Is it true that he's rejected a prize worth hundreds of thousands of francs?"

"Yes, it's true."

" Can you give me his address?"

The reply from the younger one was bored and conscientious :

"What is your interest in him?"

The reporter admitted that he was on a mission from *Le Nouvel Observateur* .

" I'm sorry, we can't give you his address. Dr. Grothendieck was so enraged by the last media bunch we sent out to him, a bunch of jerks from Radio Monte-Carlo, that he chewed us out over the telephone for almost an hour. Now we give his address to no-one. Write him a letter , address it to us and we will send it to him."

Highly pleased with himself, the journalist left the administrative offices of the Mathematics Faculty at the University of Montpellier to stroll the dreary corridors of the building, (a unique quality of dreariness hovering between first year statistics and advanced tensor analysis .) The cemetery-gray, rain-seeping sky surged with the momentum of imminent awakening. He was able in this way to talk with several professors who asserted that, indeed, they knew the Doctor Grothendieck very well. The consensus described him as someone most mortal in attributes, but for whom immortality was assured.

Beyond the ramparts of the medieval walls surrounding the Old City, at the western end of Montpellier, one finds a handsome late Renaissance royal park. In it one discovers a rectangular pool, a fountain, pergola and several rows of stunted elms with mutilated branches. An equestrian figure, apparently Louis XIV , although there is no plaque indicating the names of either man or horse, is situated at the park's center of gravity. There would be bright sunlight before noon.

The foreign correspondent sat on a range of old stone steps below Le Polygone, the ugly shopping center at the northern end of the Place de la Comédie. He gazed through the bars of a ramp at the legs of the pedestrians walking too and fro. Heads floated past like the foam on warm apple cider, with meaningless facial expressions and vague glances that communicated nothing but indifference. Sunlight reflected from the silvered window of a transom made him blink and wince.

The journalist smoothed out a crumpled piece of letterhead stationary from *Le Gazette de Montpellier* . This document stated that Le Gazette had published an article on April 27, based on interviews with colleagues and ex-students, about Dr. Grothendieck.

At the bottom of the page stood a list of contacts : Eric Terouanne, Christian Mallol, Cristine Voisin, J.-P. Olivier, Luc Trouché, Jean Malgoire, Cantou-Carrère.

Mid-afternoon on a day in late May. We are in a seminar room on the 2nd floor of Building B of the Université Paul Valéry , the science campus of the bi-cameral University of Montpellier.

3 persons , two mathematics professors and a visiting researcher sit together, grouped around one end of a wooden table. The professors are Eric Terouanne

and Christian Mallol. Terouanne has a booming bass voice which can sometimes be heard in the Bach cantata concerts at the Cathedral de Notre Dame des Tables. Christian Mallol is from Chile, a communist living in exile with his family in France since his release in 1975 from a Chilean prison camp.

The visitor, also a mathematician, wanted to meet a celebrated colleague named Alexandre Grothendieck. There are both professional and personal reasons for this ambition. He drops vague hints to the effect that he once courted a young woman, back in the very bad old days in Philadelphia (the early 60's), who left both him and (temporarily) her husband, to come to France and study Category Theory with this aforesaid Grothendieck. He still bore some kind of ridiculous grudge against the young woman's husband, who'd snatched her away from him, and he wanted to visit Dr. Grothendieck to see if his hostility ought to extend to him as well.

"Nonsense", Dr. Terouanne assures him in his soothing bass voice, "you need have no fears of Alexandre. He's an insufferable misogynist. He's been married 3 times (at least!) and now wants nothing to do with women."

"My wife hates him." Dr. Mallol confirms. "Every time he came to our house, he scolded her for the chemicals he imagines are in the food she serves him."

Eric explodes: "He's a fanatic! He never does anything by halves, but double, three times!"

Christian picks up: "When he discovered the Green Revolution in the 70's, he changed almost overnight from the worst kind of a socially and politically insensitive math nerd ... (eating bananas while standing at the blackboard, in Brazil, in the 50's when there was a famine!) ... to an intolerant left-wing zealot! Although ... I wouldn't really call him a leftist either. His political creed is called 'Grothendieck', plain and simple. Whatever it is at the moment, it's always totally dogmatic and absolute!"

"Several years ago", Eric continues, "a group of us went to the open market on the Rue de la Loge. (*Note: this open market, once the delight of Montpellier, no longer exists.*) We bought a kilogram of string beans that were almost rotted away. We steeped them, unwashed, in olive oil. Then we invited Alexandre to dinner. Seated at the dinner table, we told him that these were "organic" stringbeans without a trace of artificial chemicals. He couldn't stop praising their taste and health-inducing qualities all through the meal!"

Christian fills in the background: "Alexandre worked in Paris and Strasbourg before coming to Montpellier in the 70's. He held all the most prestigious positions in the French mathematics establishment: director of the *Institut des Hautes Etudes Scientifiques*, of which he is a founding member; co-director at the Institute Poincare; tenured fellow at the *Centre Nationale de Recherche Scientifique*; lecturer at the College de France, and so on.

"He lost every one of them. For the most part this happened through quarreling with everyone and about everything; he'll quarrel with you too after a short

honeymoon if you get to know him. Some jobs he quit, others he lost because he didn't bother to do the work.

" Legend has it that he was asked once why he never came into his office at the IHES . He is said to have replied: 'Why should I? I do more real mathematics in one week than the rest of the Institute in a year? '"

Eric interrupts: " But you've got to hear this one! When Alexandre came to Montpellier, he was already regarded as a mathematician of historical importance. Anyone who understands his work agrees that he is in the class of Gauss and Archimedes. He'd already received the Fields Medal, the highest honorary award in mathematics. This Crafoord Prize is a belated attempt of the Swedish Academy to restore the prestige of the Nobel Prize.

"Soon after he arrived in Montpellier, he bought himself a small farm in Lodève, about 20 kilometers to the west . No electricity, no running water; not even a bed. Alexandre prefers sleeping on a stone floor. Students going to early morning classes sometimes stumbled over his body stretched out on the floor of the classroom. Surprisingly, he is quite a good teacher of mathematics at the entry level: calculus, analytic geometry and so forth. He takes a real interest in elementary education, unlike most prominent mathematicians.

" Legend has it (everything is legend) that, out at the farm, he would save his shit in buckets, then go around - ever the good ecologist - to the local farmers trying to sell it . What would be your reaction to being offered the shit of a Fields medalist at bargain prices?"

"After all", Christian concedes, "you must give the man the courage of his convictions. Courage he has; but they aren't anyone else's convictions, just his own. I'll tell you another story which may give you an idea of the kind of 'political idealist' he really is:

" It was 1975, I'd just been released from prison in Chile and was struggling to establish a new life in France, with my wife and two children. We had little money and lived in a rented apartment in the suburbs of Montpellier.

" Alexandre sometimes worked late and, rather than go back to his farm at Lodève, needed a place to stay overnight. He was welcome to stay at our place, though we were sometimes irked that he didn't bother to phone but simply showed up.

" One evening he whole family was away until late. When we arrived we found the front door wide open. A roaring fire blazed in the fireplace. At the same time all the windows were wide open, and the heat was escaping through them. You can imagine how much this was costing us.

"Searching about the house for the source of this incredible situation, we uncovered Alexandre . He was lying, stark naked, in the bathtub, and fast asleep!

" Yet he's a complex person. In some respects he really is a great man. Unpredictably he would send me a check for 3,000 francs. I'm not alone in being the recipient of such bursts of generosity. He's completely sincere when he says that money doesn't mean a thing to him."

A moment's pause. The two professors ask their visiting colleague to say something about himself. He obliges them: he's done enough work in mathematics to be considered a mathematician, hardly world class and unlikely to have any place in history. To cope with idleness he produces a small newsletter: *Ferment*, as eccentric in its own way as the good doctor Grothendieck himself. He hopes to get an article for his own newsletter out of his meeting with him; *Le Nouvel Observateur* has also expressed an interest in publishing an article about him. He passes around several past issues of the newsletter for their inspection, and a few research reprints.

Christian Mallol makes his decision:

" I think you ought to meet him; it's important for the future of science. Go back to where you're staying and wait; we'll try to call you tonight with his current address. We trust you not to pass it along to anyone else.

" Don't write to him. Or if you do, put the letter in the mailbox just before you board the train. He'll never consent to an interview. My feeling is that you've got 3 choices:

- (1) You can ask him for permission to write about him. After he refuses, which is certain, you can write it anyway.**
- (2) You can interview him, then write the article without for his permission: or**
- (3) You can just invent everything from beginning to end, without even bothering to go to see him.**

The results will be equally incredible."

The visiting colleague stands up:

"I can't thank you enough for the help you've given me. I'll write to Alexandre Grothendieck tonight, mail the letter tomorrow afternoon, and catch the train early the next morning. I would like your opinion on one more thing: if his so-called 'idealism' really is so self-centered, why did he turn down a prize of over \$120,000? He could have used the money to promote all of his causes."

Christian and Eric laugh in concert. Christian shakes his head :

" The rejection of that prize is the ultimate expression of the man's egotism. He didn't reject it because of his anti-militarism, nor his crusade against corruption in science. The explanation is much simpler than that: The Crafoord award had to be shared with a former student of his, Pierre Deligne. Actually the prize is 1.5 million francs, of which he was to get half. Alexandre hates Pierre Deligne more than any other living creature . If you get a chance to read his 2000 page essay "Recoltes et

Semailles", you will see fully a third of it is devoted to his hatred of Pierre Deligne!!"

Dr. Alexandre Grothendieck: teacher, ecologist, hermit, philosopher, mystic, gad-fly, eccentric, fanatic, genius!

- who, toiling for decades to bring about the complete domination of intuition by analysis has become one of the greatest mathematicians in history;

-unraveler of many myriads of mysteries formerly deemed intractable, resolver of conjectures, poser of conjectures, master of conjectural speculation , about whose life, character and whereabouts there are more conjectures than the sum total of all those he has himself posed, instigated and resolved;

- merciless obstetrician of science who, starting in the late 50's began bringing forth innumerable children of intellect untimely ripped from dark cloacae of brain,

-only , in the 70's, to cast aside his bloody surgeon's gloves with all his characteristic zealotry, to doff the meek monk's habit

-now Zen acolyte, farmer, refugee, misanthrope, guru.....

On a cold morning in June, 1988 Dr. Grothendieck:

- eminent doctor, sage, mystic, paranoiac, dreamer, visionary, raver, saint...

-expositor of the unfathomable Yin;

- axiomatizer of the mysteries of the unfathomable Yang;

-arose from the cold, hard floor of his bedroom;

- washed, dressed, breakfasted, worked in his garden

- then drove his blue *deux chevaux* to the Post Office, (a rude building flaked with white-wash) , of his adopted village of Lessmoiron (*after a 20 year silence it is permissible to reveal its name*) , in the department of the Vacluse, a region of France long habituated to the herbergement of exiled or alienated Popes.

Here a parcel of letters was handed to him over the counter, urgent communications from 5 continents, re-routed care of the Mathematics Department of the Université Paul Valéry. Returning to his property, he re- entered the cheerful sunlite Zen DoJo he'd constructed for himself on the lower level of his split-level cottage. Seating himself by a table he opened and read his correspondence.

The most disturbing letter came from an American temporarily resident in Montpellier. It was written in both French and English versions. The writer claimed to be a mathematician, writer, war resister and all around dissident. He boasted of having published articles in *Les Temps Modernes* and edited a novel with Rene Julliard. He expressed admiration for Dr. Grothendieck's bold rejection of the Ann-Greta & Holger Crafoord Prize, which he compared, as many have done, with Sartre's rejection of the Nobel Prize. He expressed, furthermore, a desire to meet him, to talk with him about science, politics, the arms race and ecology. Permission granted, he wanted to interview him for his newsletter and possibly other magazines.

Lastly, he was curious to obtain and read a copy of the already notorious *Recoltes et Semailles*, wherein the infamies of nepotism, plagiarism, corruption, simony, greed and complicity with militarism that have infested the mathematics community of the last 30 years are pitiless exposed.

Included in the body of the letter from the unknown Mr. Lisker was a Montpellier telephone number .

"Oh my!" Dr. Grothendieck muttered aloud, " I'll have to call him right away! I can't allow anyone to come out here!"

He carried the telephone over to a table and connected it to an outlet. No one answered that morning. When he called that evening the ringing of the bell was interrupted by the sweet, sad voice of a piano teacher with predilections for Bach concerts and street musicians.

" Hello? My name is Alexandre Grothendieck. Can I speak with Mr. Lisker?"

" I'm afraid not. He started out this morning to see you. He's probably staying over in Avignon tonight."

" Oh dear; did he really say he was coming to see me?"

" Yes. He was given your address from some teachers at the Université Paul Valéry. Until you called I thought that he'd just invented you as a strategy for getting away from me. I'm surprised to learn that you really exist."

" Well, here I am. Tell me about this Lisker individual."

" He's an American. He plays the violin; I gather he has something to do with mathematics as well. He didn't talk much about himself while he was here." The voice had caught in a sob, " I'm beginning to suspect that he doesn't exist either." An unmistakable giggle.

" Didn't anyone tell him that I never receive visitors?"

"Yes; I think so. That's why he left the morning after the letter was mailed. I think he suspected that you would refuse to see him if he waited for an answer."

" Thank you very much. I'll deal with him when he comes."

" Could you remind him to call me ?"

"Of course." After their conversation, Grothendieck telephoned local friends : Yolé Levine, a French-Russian-Jewish history teacher, and her husband, Tiberio Wilson, an Afro- Brazilian cubist painter. He let them know that an American mathematician might be coming to visit him within the next few days. Could he ask them to put him up for the night? At the most he would perhaps grant him a 5-minute interview on his doorstep, before sending him over. Hospitable as Dr. Grothendieck is insular , Yolé and Tiberio agreed at once.

A trajectory is a point - locus, a continuous accumulation that still baffles mathematicians and philosophers. Despite 3 millennia of speculation, hypothesis and invention of an extraordinary richness, Achilles still sprints in a vain pursuit of Zeno's hare.

Such rabbits abound everywhere in contemporary mathematics and physics: in quantum theory, quantum electrodynamics, in the non-standard arithmetic of Robinson, Turing's machines and the Undecidability of Goedel, Penrose's cosmic boundaries, Thom's strange attractors, Mandelbrot's fractals. Mankind continues to sweep infinite dusts under finite carpets.

Yet there also exist ancient traditions in extant records, ideas that are awakening the curiosity of the most die-hard "instantationists", (*A coinage. those scientists who maintain that the only science of interest is that which is being done at this very instant, who never assign give value to precedent thought*) : schemata of cosmic vortices, monads, epeirons, germs, sparks, vacuum seeds and seminal voids, nataraji and chakravarti, cosmic dances, uncreate systolic tremblings and Ylemic ethers, octaves within octaves of alchemic spectra scattering light into a cosmic order rooted in the friable fabric of the Void.

These conceptualizations assert that each point of the manifest cosmos couches a latent seed awaiting its germination by the fullness of Time, to blossom spontaneously into a cosmos, the Organism of Schelling, sufficient unto itself, each point nurturing more seeds anticipatory of the crucial instant of their *Entwicklung*

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Each and every point is thus itself a plenum, an infinite potential well of pure possibility, like the abstract points of the Grothendieck geometries, catastrophes defining universes, extinctions heralding rebirth; points which, in themselves remain nothing more than the vanishing speck of the universe which gives it life, from which it gratefully receives a predicated existence, yet upon which its vanishing existence is also predicated.

Yet if one is also to believe, and there be many who do, that our entire universe be but the residue of late falling rose petals strewn across the path of a winter cyclone, then what interpretation may we give to the path in space and time of the train

which carried me from Montpellier to Avignon in June of 1988, across a torrid land flooded by spring, whose floral burdens pulsed, hurling pre-sentient sparks from their living cathodes, rapidly blanketing the land in a delirium of causation, electric networks radiating over a bitter soil?

Looking across the aisle out the window on the other side I could see, extending to the horizon the land, covered with rich crops of brutal plants, green, dusty ochre, white and grey, with the tortured shapes of crippled and knitted bones, of wounds in deep roots never to be excised, a harvest of suffering.

At Avignon, I gathered enough information to construct the conjunctions of train and bus schedules that could take me to Lessmoiron. I'd anticipated that there would be at most one bus going there in the morning and one returning in the late afternoon. Nor did I find it inconvenient to rest overnight in this town, fortress of anti-Popes, (*Question: would the 'anti-Pope' of the 'anti-Christ' constitute a double negative?*) one of the most beautiful Renaissance cities in Europe, now terribly ravaged and rendered almost uninhabitable by the hegemony of the automobile, in the wake of my quest for an encounter with a contemporary Pope of science (*perhaps anti-Pope of anti-Science?*).

Deeply exhausted in mind and body, I ended up staying 4 days! Long hours were passed lying in states confusing dreaming and waking. For: as *waking* be a state of recognition that most of the assaults from our environment upon us are beyond our control, whereas the perceptions of the *dream* state are fueled by our own desires, what must we be but doubly helpless, when *dreams themselves* assault us beyond our control? My quest had to be put on hold until the subsidence of my psychic delirium.

Up and about in the afternoons, I took delight in visiting a city so cherished in memory, (See for example [Quest of the Absolute](#) It was here, in the late 60's that I developed the themes and plot of my [one published novel](#). Here, during the Avignon Theatre Festival of 1969 I met a young woman who gave me happy memories and a tragic encounter in Dijon. It was in Avignon that I met the members of the commune where I would reside outside Paris for the better part of 1971; here that I developed the crafts of street guitar and violin that would serve as travel vehicles over the next 3 decades; here that I experienced the dance of Bejart; the contemporary music of the Domaine Musicale ; the brilliant burlesque of the Theatre de Soleil.

Surely there was cause to linger about its splendid monuments, the magnificent Papal Palace, the darkened alcoves where Petrarch had fingered, like beads on a rosary, his brief glimpses of an idealized Laura.

- The twank-wank-whang! of helicopters overhead

- Standing in the meadows along the banks of the Rhone, its agitated waters violent like fatal cuts through thick hides, groups of people wait for the boats races to begin.

- The Pont St. Benezet; cobblestones before the medieval gates.

- A frieze of matronly dancing trees, huge sinewed arms, possessive and grasping, like mothers holding aloft their babies in green paradises of chattering leaves.

Everything reduces to a crushed cluster of violets beside the road....

Very early on the morning of the fourth day after leaving Montpellier, I boarded a bus for Carpentras. A hour's wait to 11, then another bus arrived that would take me to Lessmoiron. The day was clear and warm, the scenery charming, the ride uneventful. At the horizon's edge loomed the gargantuan bulk of Mt. Ventoux ; I wondered if Alexandre Grothendieck had found his refuge in a deserted shack on its creased, lightning-blasted slopes. The bus reached Lessmoiron, more or less, after a journey of about 10 kilometers. Were I to miss the afternoon bus, a walk back to Carpentras would not be daunting.

Lessmoiron boasts of two hotels and a number of restaurants. It is an attractive tourist rendezvous, including some striking repositories of archaeological remnants from the days when no one knew anything about science and everybody believed in superstition.

Alighting from the bus I walked up to the nearest hotel and entered via the restaurant. The scene that greeted me within was lively and bucolic. Behind the bar counter stood the proprietor and his wife, affable, pudgy country types, serving drinks to a crowd of about a score of locals, including road workers, clerks, retired old geezers and at least one alcoholic.

The spectacle produced by my entrance was hardly sensational; I later discovered that both English and American tourists pass through here fairly regularly. The reactions at the bar appeared to vary between " Who's this guy?" to "Oh; another one."

"Hello", I asked, " Would you have a room here for the night?"

" Sorry. The hotel's closed for renovations." I assumed that this meant that I would have to walk back to Carpentras that afternoon:

"Well; I'll tell you why I'm here. I'm looking for a bit of property called Les Aumettes."

"Yes; that's about 3 kilometers from here. Is there somebody there you want to see?"

" I'm looking for the famous mathematician , Dr. Grothendieck."

The crowd stared at me as towards a creature whose suspected madness has finally been revealed.

"Grothen - WHO??"

" Alexandre Grothendieck. He's the mathematician who rejected a prize worth 800,000 francs."

" AH - HIM!!" Universal laughter, animation, conversation, an eagerness to communicate, all talking at the same time.

" No one can figure out what the devil inspired him to do that !"

" He could have given the money to us!"

" Get the man a glass of wine; say, are you an American?"

"Some reporters came out here about a month ago."

"There was an article in the local newspaper."

" None of us really know him. He seems a nice enough guy."

" What brings you out here, by the way?"

"I'm researching an article for *Le Nouvel Observateur* . "

The hum died away. A reporter from one of the major Parisian magazines, here in Lessmoiron? This had never happened in living memory; and memories were long in this hamlet, where there was not much else to do but remember what little there is worth remembering.

There was, it is true, that pair of comedians from Radio Monte-Carlo. After visiting the famous mathematician they produced a program in which they referred to him as "Professor Stringbean in his cabbage patch".

...But this guy looks different, almost a professor himself, although it wasn't clear how a person with that thick American accent and odd grammatical constructions could be working for .. unless.. *he could be an international correspondent!* ...now that's a possibility...

The hotel proprietor put down his towel and the glass he was drying and came around to the front of the bar.

" Let's go. I'll take you to him."

We left the hotel compound and walked across the street to the parking lot before the municipal building. There we got into his car, a blue *deux chevaux* . These are amazing vehicles by the way. They cost almost nothing and are quite serviceable for a few years before their complete collapse. After they've worn out, you can use the scrap metal to cover your roof. We rolled past conglomerates of traditional red brick- rooved French provincial houses piled together like slagheaps at the side of a riverbank. Forests of evergreens covered the slopes of the low rolling hills in pre-

sheaves. I had the distinct impression that the sun was making faces at us, telling us that He too was enjoying himself.

Finally after essentially 3 kilometers, (give or take an epsilon or a delta), my host brought the car to a halt at the inception of a dirt road slicing off to the left through tilled fields. This road might have been deemed awe-inspiring were it not indeed pitiful. Scrawny as the neck of a throttled chicken and crawling like a brushfire through the Mohave desert, its abundance of boulders and white dust could lead one to believe that it had been bombarded by the cannonades of every war between French and Germans in the last 120 years.

"Up there." The hotel proprietor pointed across my chest out the window to a kind of Mayan stela , an accumulation of stones organized about a central purpose, visible above a copse of dark spruces and surmounted by terraced vegetable gardens.

" That's where your gentleman lives."

The car plunged into the boulder-strewn road as a kayak is thrown across rapids, sparks flying from the chassis in league with the cruel sound of metal against brick, the car bounding through the dreadful chasm, with only the imperturbable frown of the driver to hedge despair. To my great relief we reached the back of the *chaumière* in a few minutes.

"He's probably not home.", the proprietor advised me, " His car isn't here."

I sadly reflected that, in our modern age even a hermit is dependant on the automobile. I stepped out of his car and walked cautiously around to the right side of the building. Grothendieck's cottage was built up against a hillside, it's conical shape hugging the hill like the helmet of a medieval knight. The lower entrance was graced by a pair of sturdy French windows. Above these, at the level of the attic, two tiny rectangular windows filtered light into the bedroom. I stood on the grassy lawn beside the lower entrance and called, several times :

"Bonjour, Docteur Grothendieck! Bonjour! "

I received no answer. Either he was not at home or was ignoring me. Suddenly a wiry, emaciated white vicious cat sprang out from the bushes on the hill slope to my right! Its hissing was terrifying, filled with echoes of ancestral jungles. A pair of fangs, quite large given the build of the cat, gleamed in the waxen sunlight. No beast could be more eloquent in warning away trespassers.

"My God!" I thought, " Savage cats infest the grounds of Grothendieck's house! "

I turned around, jumped back into the car, and we returned to town. As we pulled into the hotel compound, the proprietor's wife, a smiling aproned woman with copious blond hair and big arm muscles stood in the doorway and cried:

" Somebody's spotted him at the grocery store! He's just gone back to Les Aumettes!"

Without a word, the hotel manager turned the car around. This time we took another road which passed by the front of the cottage and avoided the bouldered gully. Grothendieck's car was parked along the right side of the building. Once more I strode across the lawn under the menacing eyes of the re-emergent cat, a far less terrifying being than he had formerly appeared.

Set in an antique archway, the front door of the cottage was a crude construction of rotted lichenous planks with rusted keyhole.

I applied a few timid knocks and stood back.

The door opened to the inside. Onto the stone step walked an elderly yet vigorous man. His eyes blinked uncertainly as he inspected me with an intense quizzicalness. His facial skin, weathered and stained, was tough as cured leather, the brow of his elongated head raked with furrows. The lenses of his glasses were thick. Complementing his bald scalp was a flowing grey beard and bold Semitic features calling up a definite resemblance to Allan Ginsberg, (*although fortunately more blessed in the I.Q. department*). The absence of most of his upper teeth created a staggering hole in a mouth already black with carious rotting stumps. His rough trousers were caked with mud, as was his oversized dark brown shirt dangling over a cord belt.

I began to explain in my picturesque French, that I was the American who had written to him a few days ago. It had been explained to me several times that he didn't receive callers; I was therefore prepared to leave at once if he didn't wish to talk to me. As he listened to my improvised excuses his perplexed, suspicious frown gave way to a broad smile that broke over and illuminated his features. By the time I'd finished, it was clear to me exactly what was going through his mind:

" A Visitor At Last! A Visitor's Come To See Me!!!"

Dr. Grothendieck walked over and inspected me thoughtfully, a finger to his lips:

" You know, of course, that callers aren't welcome here..... but, since you've come so far.... why don't you stay for breakfast? I'm grinding up a kind of porridge from wheat, one might call it a kind of 'wheatmeal', with honey, yogurt, raisins, nuts and dates. We can talk a bit over breakfast, then I'll send you over to friends who will put you up for the night."

My hospitable driver, standing by his car, now asked if he were still needed.

"No", Grothendieck replied, " Thanks. You can leave him here with me. Everything's fine."

On our way into the building I asked him about his cat. He laughed: " You don't need to be afraid of him. He's just not used to people. Actually he's rather friendly."

Before going upstairs to prepare breakfast he installed me in the downstairs living room where I could browse through a copy of *Recoltes et Semailles* lifted off the top of a pile stacked beside the door. The room was sparse and simply furnished, with a few chairs, a bedstead and some Indian blankets from the American Southwest. At the far end stood the DoJo, a Zen Buddhist shrine decorated with Oriental cloths, ikons, sticks of incense and a bronze statuette of the Buddha. As I could not hope to do justice to a book of 1500 pages in the 15 minutes at my disposal, I passed the time putting my journal notes into shape and organizing a list of questions that I wanted to ask him. He came down to announce that breakfast was ready. We walked around the building up the slope to the front door and into the dining-room.

This room was quite different from the one downstairs: dark and confined , with little natural light. On the walls were several pictures of a religious character. Assorted ornamental objects stood on the windowsills, shelves and table, example of folk crafts or items of a devotional nature.

Before beginning our meal, Grothendieck recited a Zen mantra. He'd done some teaching at the University of Kansas, and made the suggestion that we speak in English. What developed in fact was an inhomogeneous mixture of French and English enough to horrify any structural linguist, as it adapted itself continually to the situation at hand and did not indulge in some advance analysis of the mutual intersection of the deep structures of each languages.

The breakfast was delicious. Despite the disparaging accounts of his Montpellier colleagues, Alexandre Grothendieck has some very good ideas about eating well on a simple diet. After a few preliminary questions about my own mathematics background, he confessed to not having done any mathematics himself for 15 years and could not talk with me about modern developments.

" I'm not a mathematician anymore", he beamed, as if taking great pride in the accomplishment, " I now devote my days to the transcription of my dreams."

He wanted to know what had inspired me to look for him. I mentioned the article that appeared in *Le Monde* on May 5th, exactly a month before.

" Ah - That!". His eyes flashed. "Look, you may be able to help m ! *Le Monde* altered 3 *words* in the letter I sent to the Swedish Academy! Without my permission! One would imagine that such an important newspaper would not need to stoop to blatant censorship! What do you think I should do about it?"

"Why don't you call up the newspaper and ask them to print a retraction identifying the three substitutions, with the appropriate corrections ?"

"*Never!* That's what it offered to do. I refused! It's a question of integrity! I insist that they republish the entire letter, correctly, along with an apology. If they ignore my request, I'm going to sue them! Let me ask you - can you recommend a good lawyer? " I told him that I didn't happen to know one, but would pass along any names that came my way.

I remarked that even a brief glance at the contents of *Recoltes et Semailles* had given me some idea of his reasons for rejecting the Crafoord Prize. We seemed to be in agreement on a fundamental principle: that among the things that are more important than money, is the refusal to accept the notion that nothing is more important than money.

"Sure", he nodded, "It's obvious, isn't it? I want you have a copy of the book. Unfortunately I haven't got any copies of the last volume with me. It's being photocopied in Montpellier. I'll let you have the first 1000 pages; that should be enough to get you started.

" What concerns me most at the present moment is seeing to it that this book gets published. That's of far more importance to the world than my mathematics. (*Note: this is not an invention of the author : AG really said it.*)

I offered it first to the *Société des Mathématiques de France* but they rejected it. I'm not in the least surprised: What else could you expect? It attacks everything they stand for. I've sent it to Editions Odile Jacob; I'm certain they'll publish it. How could they do otherwise? It's obviously an important book. It's going to make a revolution in our life-times.

" I've got exactly 21 more years to live; it's all been revealed to me. But the Millenium will come before my death."

Then he asked me to tell him more about myself. The account of my violin-playing craft as a means of traveling about the world gave him real delight . I would learn much later that it was not dissimilar to the street trades that his anarchist father used on the streets of Berlin in the 20's and 30's .

Breakfast was finished. In a voice that had become suddenly stern, (as if reminding himself that life is a serious matter) he informed me that this, like all days, was a work day , and he guarded his time jealously. Therefore he was going to set me up downstairs, in his living-room with my copies of the volumes of *Recoltes et Semailles*. He would also bring me the file of all the letters he'd received because of the publicity generated by his rejection of the Crafoord Prize. These letters, together with his replies , would tell me more about his motives than any amount of explanation.

He walked me down to the Do-Jo and set me up at a table with the letters and a glass of cider. Then he returned upstairs to call Yolé Levine. She would be driving over in a few hours to take me back to her house in Mazan.

Not extensive, the file was, all the same, extremely interesting. There were letters in all the categories one might expect: those from persons urging him to accept the prize so that he could give the money to them; those urging the same thing from causes and organizations with which he was in proclaimed sympathy; a cranky letter pointing out how he was damaging the French economy by rejecting the prize; letters from persons hostile to the collaboration of science with the military;

letters from colleagues expressing a basic sympathy for his decision to reject the prize.

From Vienna a girl writes him a letter in faulty English. Her father is sick and unable to work; her own personal situation is very bad. Couldn't he accept the prize and send at least part of it to them? Grothendieck replied with a letter written in German, containing some advice and sincere expressions of consolation.

She then sends another letter. this time in German. He replied with a letter full of sympathy and free of condescension, letting her know that the rejection of the prize was not connected in any way with the money.

There were similar letters from friends involved in environmental organizations, including members of the organization *Survivr* of which he was co-founder. He took these letters quite seriously and wrote considered replies. A single phrase captures the substance of his arguments: *je ne peux pas a la fois refuser un prix, et disposer a ma convenance de la somme qui va avec.*

In the exchange between himself and a representative of the organization *The Friends of Le Chambon* , in Los Angeles, he was not so tolerant. This name refers to the village that protected him and his mother as refugees during the war. See below.

He advises Grothendieck to accept the prize so that the organization could use the money to make a film about the story of Le Chambon and its charismatic leader, Andre Trockmé. They hope to use the proceeds from the film to establish a museum commemorating the role of the village in World War II.

The letter sends him into a towering rage: He doesn't want to be reminded of that part of his life which was passed in the camp; he doesn't want the rest of the world to know about the camp; in abusive language, he accuses the writer and the organization of hypocrisy; he execrates their very intentions, accusing them of "affecting an air of raising the elementary phenomenon of human solidarity in troubled times to the level of something extraordinary and sublime to be admired by all posterity."

The level of scorn shown in response to a simple if somewhat tactless fund appeal reveals the arrogance of a man willing to be humble only on his own terms. Jacking up his sarcasm to its pinnacle Grothendieck concludes:

" The material difficulties which are evoked by your letter are no doubt part of that good that is being done by your works. Like all the other forms of pain and anguish that accompany our existence, they should be thought of as the heavy millstones grinding the stubborn grain . "

From the appalling to the absurd: A woman writes to remind him that she was his student in mathematics at Montpellier. The letter includes a photograph. She doesn't ask for the money for herself. Instead, she orders him to accept the prize as part of his duty to the French nation! Anyone can see just by reading the newspapers, she argues, that France is in the throes of a dire economic crisis. If

Alexandre Grothendieck accepts and spends his 800,000 francs, the Keynes' multiplier effect will inflate that amount to 8,000,000. By refusing the money, he has robbed the French nation of 8 million francs! After all that it has done for him!

Dr. Grothendieck , overwhelmed with guilt from this accusation of robbery , must have taken real comfort from the congratulatory letter from from Francois Mitterand. The award from the Swedish Royal Academy is, to his mind, one more evidence of, " *La très haute qualité de l'école mathématique française.* "

The next category of letters related to Grothendieck's life-long preoccupation with the corruption of the French scientific establishment by the military. It appears in his letter to the Swedish Academy. As far back as 1971 he'd written a 40-page essay entitled "The Responsibility of the Scientist Today". Quote

" The great majority of scientists do not hesitate to collaborate with the military establishment either directly or indirectly. "

In one of the legends surrounding his resignation from the IHES (the mathematics think-tank in Bures-sur-Yvette of which he was a co-founder and past director. It is France's equivalent to our Institute for Advanced Study) it is claimed that he did so after discovering military research grants in the portfolio of the Institute.

The legend (for we must treat these as legends, in which there is always a stubborn grain (minus millstone) of truth) of his dismissal from the College de France claims that he announced, at the commencement of his public lectures on Algebraic Geometry, (attended by students and scientists from all over the world) that, since Algebraic Geometry was of little value in a world face with mass extinction, he was going to devote these lectures instea to a polemic against the Arms Race!

After reading the letter published in Le Monde , a physicist in Marseilles sends him, in several installments, an account of 25 years of unrelenting harassment by the military . During the period in which he was stationed in Rouen, he'd done research using low-level modulated radiation to destroy cancer cells. The army tried various forms of pressure to get him to convert his technology to one that would *produce* cancer cells. He accuses the CNRS, (the French National Science Foundation) of "total complicity".

IN 1974, unable to tolerate the pressure being brought to bear on him, he dropped out of cancer research altogether and started doing work in Cosmology. In March of 1988, in an effort to force him back to Rouen, the CNRS tried to kick him out of the observatory in Marseilles where he has been working for 14 years. This initiative was thwarted by the solidarity and quick response on the part of his colleagues. How much of what he says is true and how much a projection of embittered feelings is of course impossible to say.

The themes of corruption by big business and the military in the sciences are reiterated in several other letters. The magazine POLITIS asks Grothendieck to write an article for them; the magazine L'HEBDO offers to employ him as advisor in their investigative reporting on corruption in science.

Finally there was a letter from a former colleague which echoed Grothendieck's opinion that the very act of awarding him the Crafoord Prize was part of a grand conspiracy to stifle his work! This clearly goes beyond a protest against dishonesty to some kind of revelation of a direct personal attack. The argument, as explained to me by Grothendieck himself , goes as follows:

The members of the committee from the Swedish Academy that awards the Crafoord had somehow learned, (through some sort of conspiracy grapevine) , that he had written a definitive account of 30 years of abominable moral turpitude in the sciences, the infamous *Récoltes et Semailles* . They worked out a scheme whereby he could be both morally compromised and bribed not to publish this book. *That was the reason he'd been offered the prize in the first place !* He would thus be forced to share the large amount of money attached with that arch-villain of its pages, the Judas Pierre Deligne.

But Grothendieck had proven to be too clever for them! The 1500 page story of his burial by the world of mathematics , (complete with the corpse-who-refuses-to-die, funeral pyre (e.g. the burning of his works) ,the funeral orations (e.g. denunciations by colleagues) , coffin, hearse, pall-bearers, Marche Funebre, Danse Macabre, burial, exhumation and re-burial , ascension and final De Profundis!) would not be silenced by a measly sop of 800,000 francs; "*nor* (he swore to me just before we sat down at the breakfast table that morning) *for ten times that amount!*"

There is so much drama in today's political re-shaping of the world (*Note: written circa 1989*) , that it is perfectly reasonable to me that most people find what is happening in Rumania, Czechoslovakia and East Germany a good deal more interesting than any account of an iconoclastic mathematician living in a country which, compared say to China or Russia or Bangla-Desh, is very much like our own.

Yet, as the Hindus maintain, it is the purpose of appearances to deceive. One finds immediate connections between the personal drama of Alexandre Grothendieck and contemporary developments in Eastern Europe. Our world is quite a bit smaller than we tend to imagine it. Modern Europe is still a product of the Russian Revolution and the Second World War. In coming across any interesting person of European background older than 50, it is all but inevitable that his character and life-story have been hammered out on the anvils of these monstrous calamities.

In the case at hand, the Russian Revolution and the Second World War are the very soil of the Grothendieck phenomenon. In this one impressive and fascinating human being, in his vanity, his eccentricity, his rejection of society, his social awareness, his spiritual path, and his great scientific achievement, one finds, as in a Leibnizian monad, the entire 20th century.

The reader will understand by now , that in the relation of any aspect of Grothendieck's biography, one is always dealing with a mixture of fact and legend. Neither cracking nor soaking the walnut will do (*This refers to a famous metaphor*

that appears in Recoltes et Semailles: mathematical problems are of two sorts: some are like nuts one cracks open with a sudden hard blow; others are like walnuts that one soaks in water for days until the tough skin peels away of itself.) Any attempt to separate truth from fiction leads to the immolation of both. It is Wittgenstein's dictum with a vengeance: The world, that is to say, universals, particulars, and fables , is everything that is the case.

There are a number of hard facts, certainly, with records to document them; yet with a persistent overlay of half-truths, interpretations and misrepresentations , inventions of friends, students, admirers, detractors, the products of lurid, infatuated or malicious imaginations .

To these one must add the many stratagems employed by Dr. Alexandre Grothendieck himself that make it very difficult to get at the truth. Only the research in mathematics is undeniable fact; and even then.....in the end.....the assessment of the full extent of all that he's done in mathematics (which could require a century or more) may prove to be more controversial than the life!

The Anarchist movement in Russia, launched in the 19th century by the writings of Kropotkin and Bakunin soon turned to violence, bursting open and spilling its contents like an infected wound in the period just before the premature revolution of 1905. Students, mostly in their teens or early twenties, many of them Jews, (since the time of Czar Alexander III the most persecuted of all the minorities), enrolled themselves into extremist movements dedicated to destabilizing Russia by unbridled terror, by "motiveless murders", suicide missions , reckless bombings and vandalism .

A group particularly distinguished for its fanaticism was Chernoe Znamia " The Black Banner". Virtually all of its adherents were captured , to be killed on the spot or executed soon afterwards. Those whose lives were spared were often handed down sentences of life imprisonment. One of these was Alexandre Grothendieck's father . I cite this organization only because it is typical; he may have belonged to another group, the Beznachalie , "Without Authority"; or one whose name has not come down to us. Grothendieck's father's full name was Sasha (also Alexander) Shapiro. In 1905 he and his friends were rounded up after a failed attempt to murder Czar Nicholas II. All of the others were executed. Sasha Shapiro, only 16, was spared because of his youth. His sentence was commuted to life imprisonment .

The Czarist regime abandoned him in a dungeon in Moscow to die a lingering death. This would certainly have happened were it not for the intervention on the part of an influential friend that resulted in his transfer to Siberia, where conditions were at least more wholesome. Sasha remained there for 12 years. During that time he lost his left arm, by one account in a suicide attempt; by another in an escape attempt.

Came the revolution. In 1917 Sasha Shapiro was released and honored as a national hero. As an Anarchist, not a Bolshevik, life continued to be difficult for him in the new Russia and he left for Germany around 1922.

At this point his life overlaps a bit with that of a more celebrated anarchist Sasha Shapiro, that is to say Alexander M. Shapiro, Secretary of the International Anarchist Federation in London in the 20's and the traveling companion of Emma Goldman and Alexander Berkman. He, too, left Russia in 1922 and went to Berlin and, like the other Sasha and his wife Hanka Grothendieck, also ended up in Madrid in 1936 on the eve of the Spanish Civil War.

Otherwise the lives of Alexander M. Schapiro and Grothendieck's father differ in all other particulars. Alexander M. Shapiro was not born in Russia, but in Turkey. In Russia he edited the anarchist magazine, Golas Truda. He died in New York City in 1946. Grothendieck's father was picked up in 1942 by the Germans in Paris during the Occupation and perished in Auschwitz. As a final coincidence, I should note that the early life of Alexander M. Shapiro resembles that of another anarchist, German Borisovich Sandomirskii: Sandomirskii and Shapiro served together briefly in the Russian revolutionary government after 1918. Sandormirskii was liquidated by Stalin during the purges of the 30's.

Shasha Shapiro was very active in anarchist circles in Berlin in the 20s. It was through them that he met his wife. Hanka Grothendieck came from a well-established middle class family in Hamburg. It had come over from Holland in the previous century, hence the name. Every bit as committed a radical as her husband, she worked as a journalist for the anarchist newspaper, Der Pranger, (The Pillory), copies of which can still be read on the Internet. More details can be obtained from the biography of Walter Scharlau, available on the Grothendieck Circle website.

Thus, the family name of Alexandre Grothendieck, (we will sometimes refer to him as "Shurik" for the moment, as he called by family and friends) the first of their children, is that of his mother, a necessity for survival in an increasingly anti-Semitic Germany. In 1933 the young Grothendieck was intrusted in the care of a middle class family sympathetic to anarchist causes, the Heydorns, while his parents went to Spain to participate with the leftist government and the upcoming Civil War. The Heydorns provided for Shurik as long as they could but finally notified his parents that it was too dangerous to keep him any more. During their 7 year absence, from ages 5 to 11, Shurik was raised in Berlin, bearing a Dutch name, going to German schools with a Nazi-oriented ideology, and, from what I've been told, (though I find this very hard to believe), unaware that his father was Jewish.

In May of 1939, only a few months before France entered the war, the Heyndorns put Shurik on a train to Paris and his father. In 1940 he and his mother were interned in the Rieucros Camp near Mende. Afterwards they went into hiding in the Cevennes mountains in the south of France. Sasha, constantly involved with political activity , stayed in Paris until he was captured. When the Germans crossed the line of demarcation into Vichy France in 1942, Shurik and his mother found a refuge in *Le Chambon sur Lignon* in the Cevennes , a village organized by

the Protestant minister, Andre Trockmé, into a refugee camp, hiding place and way-station to Switzerland. This celebrated village is the topic of the historical memoir of Phillip Haillie , "Lest Innocent Blood Be Shed".

Both mother and son survived the war and settled in Montpellier. She remained in the south of France while he went on to become famous at universities in Nancy, Strasbourg and Paris. She died in the 60's.

This background, which I have deliberately tried to keep as vague as possible, given the ubiquity of fabrication and legend surrounding him , gives us enough of a basis for appreciate the motivation for his rejection of the Crafoord Prize, his decision to return to Montpellier in the 70's, his penchant for internal exile, and other matters. They cannot begin to tell us anything about the unique gift for mathematics, why it was so long in making itself known, the intensity of his devotion to it for 15 years, and his sudden rejection of both the substance of this field and most of its community. Perhaps only Shurik's "God" with whom he claims to be on such intimate terms, can answer these questions.

Yolé Levine came by at 4:00 : A short stocky woman in her 50's, white-haired, muscular , lively with humor and sociability. As Russian-Jewish as my grandmother, maternal and very independent. Yolé is married to an Afro-Brazilian cubist painter, Tiberio Wilson . On my first visit with them, their granddaughter, Remagi was visiting with them from the Ivory Coast . Such a household, which might raise chauvinist eyebrows in the center of Paris, could only be deemed extraordinary in the provincial hinterland of the Vaucluse. Synagogue desecrations and other manifestations of fascism are standard fare in the news reports from Carpentras.

In all respects Yolé is the total counterpoise to Grothendieck. She was also his only friend in the region. On our way back to Mazan 6 kilometers away, she chatted with me about their way of life . Normally, when Shurik decided that he didn't want to converse with anyone else, he still talked to her. When he wasn't talking to her, it meant that he was doing his Trappist monk act, not speaking to anyone. In those phases of incommunicado he would write out a grocery list before going to bed at night and leave it on his doorstep. Yolé would come by, do his shopping and deposit the bags outside his cottage for him to pick up later in the day . As part of the exchange, he gave her a good part of the produce from his vegetable garden. When he decided that he wanted to confront the human race (minus one) again, he plugged in his telephone and called her up.

By contrast, Yolé and Tiberio's rambling house is always open to visitors . She seemed to take her greatest delight in cooking up dinner for six or more guests. During his stay in the Vaucluse (which came to an end, abruptly, around 1994) she was the unique, and the ideal, intermediary for Shurik , his umbilical cord to the rest of the world.

Yolé confirmed some of the myths about him, though warning me not to take too literally much of the malicious tale-bearing to which the academic world is prone.

She admired his accomplishments and was very fond of him. Yet even she stated that there were times when he was completely impossible to deal with.

The home of Yolé, Tiberio and Remagi is a cozy adobe jelly of 14 tiny rooms, with terraces, balconies, narrow corridors and staircases. I was put into a room looking out over a gardened narrow alleyway in an ancient castle town. Their neighborhood, a confederation of clustered domiciles, grows around an embedded planar graph of village gardens edged with muddy walls and fences and vertexed by knobby homes - as if a potter had wheeled several mounds of clay into this part of the village, dumping them at random, then opened passageways and poked rooms into them with his thumbs. The estate of the late Marquis de Sade of blessed memory stands on the other side of the village, on a tiny street whose name expresses deliberate irony: that of his final jailer, rue Napoleon.

Yolé speaks some English. Tiberio doesn't speak any English, but is fluent in Portuguese, Italian and French. He leads a sedentary existence now. In the past he was in touch with most of the expatriate artists of African descent in France, James Baldwin and Richard Wright among them. His work is better known in Italy where he lived many years. I gathered that he's never put together a satisfying career in France. As did Grothendieck with regard to lawyers and publishers, Tiberio asked me if I had any contacts in Paris, with art magazines or galleries. Unfortunately, I don't know anyone in that world.

His outlook is somewhat embittered and defeatist, in contrast to Yolé who projects at least an outward appearance of boundless optimism. The conversation around the dinner table with them and their 14 year old granddaughter was jolly and intelligent. This household must be one of the few focus of intellectual vitality in the region, at least since the departure of Petrarch. Certainly Shurik's sad and austere monastery did not shed much light beyond its narrow confines.

I recall a few guests who showed up, stayed a short time and left. Several bottles of red wine were emptied during a heavy pasta meal (Tiberio is a stabilized alcoholic and only drinks weak beer which, however, he uptakes in large quantities). I made the mistake, although my smoking habit had been stubbed out in 1985, of smoking a fungal Gaulois cigarette. My stomach felt very sick: the *clope* may have conjured up some ancient intestinal chemistry from the 70's. Around midnight I excused myself and went to bed.

When I rose the next morning I knew that I was seriously ill. Yolé would not have let me continue my travels had she had realized the seriousness of my condition; but one doesn't always know how to articulate the symptoms of a disease one is experiencing for the first time. I spoke to her in a vague way of headaches and stomach nausea, but the disequilibrating sensations underlying these indicators could not be conveyed. It felt as if the body were preparing itself for death; it was that bad. Recollection confirms the accuracy of this description: the illness directly attacked the vital processes.

Taken altogether these excesses, the heavy strain of a month on the road as a nomad surviving by street crafts, the long walk which I took about the open countryside, and perhaps the afternoon in Alexandre Grothendieck's damp (

though charming) basement living room , brought about a serious viral infection that quickly flared up into brain inflammation and a brief but acute nervous breakdown accompanied by nightmares and hallucinatory experiences during the gruesome 6-day ordeal of the trip back to Paris, and for some weeks afterwards .

Yolé and Tiberio invited me back for the spring. Visiting Grothendieck would be best arranged through them. Between the two households I had been charged with several missions :

- To contact the publisher Odile Jacob to learn what stage had been reached in the publication of *Recoltes et Semailles*
- To make a rough translation of a passage in R&S that he had indicated ("*Tous les Chevaux du roi*") , so that he could decide if he wanted to engage me as translator for the massive work ;
- To contact Parisian art galleries and persuade them to exhibit Tiberio's work ;
- To find a lawyer for Alexandre if *Le Monde* refused to reprint his letter in its entirety and without deletions.

(c) and (d) were fanciful: I didn't know any gallery owners, I didn't even know any French painters, I'd just returned to France a month ago. In 1970 it is true, I lived in a commune in Aulnay-sous-Bois, in the northern suburbs of Paris, populated largely by a wild revel, a *debauche en permanence* , of students at the Beaux-Arts. As for searching out a lawyer, it was impossible to imagine that Alexandre Grothendieck would give up his cherished isolation to wage a frivolous lawsuit in Paris. As expected, Odile Jacob did not give me a friendly reception, particularly when I told them (knowing full well their response) that I might be writing an article for *Le Nouvel Observateur*: the vanity of publishers in France reaches to the uttermost heights of the ridiculous. We will take a look at (b) in a moment.

Back in Paris I took up residence in my former hotel, the *Telemaque* on the rue DaGuerre. I was extremely sick for about two weeks (An account is written up in the companion piece "*Travels in France, 1988*", soon to appear on *Ferment Magazine*), By the end of June I was once again up and about. In the first stages of recovery I wrote letters to Yolé and to Alexandre : his replies are published below.

Le Nouvel Observateur reimbursed the travel expenses of my search for Grothendieck; this brought in \$300. Several friends from my days in Paris in the 60's and 70's were able to help me . I must take this occasion to give especial thanks to André Gorz, who sent \$200 at a moment when it looked as if I would have to pursue my convalescence on the Parisian sidewalks. Near the end of June this letter from Alexandre Grothendieck arrived: "*Dear Roy*:

*I've been waiting eagerly and impatiently for the writings of yours you forgot bringing from Avignon, and for the translation too you promised (of section 15 "*Tous les Chevaux du Roi*" of "*Promenade à travers une Oeuvre*" , just half a page...) In the long last yesterday I finally phoned to Mlle (Note: co-conspirator in a brief intense love affair in Montpellier) to ask her if she had any idea whether*

you were still living, but she only giggled and just didn't want to believe that I really existed, and didn't seem too sure of your existence either. So I gave up in despair, when I was cheered up by Yolé bringing me your letter - a life-sign in the long last! I'm afraid, Roy, I've appeared too reticent to you, to be talked to at all, etc., that I scared the hell out of you and you don't dare write to me directly like a normal and sensible man. Awfully sorry Roy I have been so slow realizing I didn't need to be defensive at all with you. As a matter of fact, the very evening you left my place for Yolé 's I realized God himself had sent you to my humble abode for assisting me in some of my tasks (Italics added) ; for instance that you were exactly the only kind of chap which makes sense for translating Reaping and Sowing into English. You look just the same brand as Yuichi Tsuji , the Japanese friend of mine from the Survival times (I had more or less forgotten all about him in the meanwhile), who as soon as he got ahold of R & S started translating it into Japanese, without so much as asking me nor worrying if there would ever be an editor to publish his translation. He's a "mathématicien marginal" like you, never looked for an institutional job anywhere, lives in giving lessons and the like, doesn't know French any better than you and still does a beautiful job. Asks me whenever the exact meaning of something remains dubious to him, I have quite a few lists of questions to answer, which makes it quite clear how painstaking he is in his job. By the way in my last letter to him I told him about our encounter, and in his answer and in spite of his being a man of scarce words, he showed himself very glad about it.

After you were off to Avignon and Paris I realized I shouldn't have let you go before a few days at least spent at Les Aumettes taking your time documenting you on this and getting acquainted with the place and with me. Unless of course you had some urgent matters in mind you had to pursue elsewhere.

In your letter to Yolé you don't make any mention of the translation of R & S you speak of an "interview" instead. Whether publishing interviews with me at present is timely isn't too sure to me, at any rate it looks to me as quite a secondary matter in comparison with translating R & S, and possibly also some of the maturer and deeper books which are to follow. If the magnitude of the task doesn't overwhelm and appall you, Roy, and if my person, style and thought appeals to you as your own style. ways etc. are appealing to me from what I got of you so far, why don't you come here and start the work in quietness, down in the dojo where I accommodated you when you came? There you've full independence of living, for preparing your meals etc., I can lend you the car for your errands or visiting your sweetheart(s). If we get along with each other OK and your interest in translating my stuff prevails, you are welcome to stay as long as the work demands and as yourself like it here, while I would take charge of your expense by an appropriate monthly allowance.

Your playing the violin wouldn't be a disturbance to me (still less so when you play Bach), however I'm quite allergic to radio and television blabber. You could work part time at the translation, part time at your own writings. At any rate, I don't expect a translation of the whole of R&S to be completed before about two years. If needed, every few days we could spend a while on the difficulties you encounter with the translation. Possibly it will take you awhile till you get the right feeling and twist for doing the job, admittedly quite a delicate one.

I'm very eager to know what you think of these suggestions. If you feel like having a try at my place, please give me forward notice of your arrival at Carpentras so I can pick you up there. If you like to have a phone talk first, please tell me where and when to ring you up. Looking forward to hearing from you again, and with my best regards.

ALEXANDER

P.S. : I've talked with Odile Jacob. She looks quite impressed with R & S, just a little worried it is so long and so unusual and it may bring in lawsuits, (which I don't believe, because the facts are so plain and lawsuits would just make things worse for the plaintiffs .) But I believe she will not miss the chance and will take care that it gets out soon, and nicely. The contact with her was quite cordial. I'm kind of impressed to that she was able to feel some of the substance which makes R & S a long-term investment for a publisher. She well understands it will be read still in a hundred years and more, something which very few of the colleagues to whom I sent it (and most of whom never so much as acknowledged reception) got any inkling of.....

After receiving this letter, I re- examined *Recoltes et Semailles* . It didn't take long to recognize that it was inadvisable to work on the translation. Alexandre's notion that I had been sent by God did not go over very well to someone convalescing from a serious psycho-physical illness and still in a somewhat shattered condition. Like Alexandre himself, I really just needed to be left in peace. In the meantime a contract had been offered me from Ellis Horwood, a publishing house in England , to do a translation of a treatise on Information Theory written by Jacques Oswald (formerly director of the research labs of the Electricité de France, roughly comparable to director of the Bell Labs).

I told Alexandre about my illness, my visions, my decision not to undertake the translation of R & S, and of the offer from the publishers in England. I listed a number of objections to his book, the principal one being that many of the people he attacks in it are known to me and I didn't agree with his negative opinions of them . Implicit but unspoken was my realization that many of its pages are filled with paranoid ravings, although the memoir also contains passages of considerable interest. I also, as gently as I could, took exception with his view of himself as the greatest scientific thinker in recorded history, and suggested that perhaps Isaac Newton had also had a few good thoughts in his day. Alexandre's reply arrived in a week:

Les Aumettes July 4,1988

Dear Roy:

I am glad that your short passage at my place triggered what you call a (fifth) "religious experience", and still more so, that this has called forth what looks like actual change - a kind of thing which doesn't happen too often in peoples lives. If this change is rooted in some new understanding as it seems, its doesn't need any contract nor mathematical proof of unbreakability of contract, in order to be and remain effective. And if the understanding remains a shaky one, there are more efficient ways than contracts and proofs for rooting it deeper ... I am sorry that you've been

dragging your fever and delirium from one hotel or auberge de jeunesse to another, rather than curing it out in quietness at Les Aumettes. Yolé had told me that you'd caught a cold at my place . But maybe we shouldn't lament, if the cold was instrumental for your visions of hell and heaven, which is well worth some sweat and trouble!

Sorry Recoltes et Semailles doesn't really appeal to you. Some of your criticism intersects with my own (see my previous letter on this). It was my dreams first (back in December 1986) which made me get aware of big defects, so much so that I finally gave up the idea of publishing the stuff altogether. After which other dreams told me that God collaborated with the writing (of course he's not responsible for the defects!), and that I should publish it. And the day before I got the letter from Odile Jacob, I had another dream which (of course always in a very allusive way) told me about the same, and suggested to cut off "Promenade" - a suggestion which came as a relief, because I had felt before (though it remained subconscious) that this apology of my work was out of place in the whole. Still it isn't maybe quite as bad as you say and you reading may have been a little quick, saying for instance that I don't as much as mention Newton's name, whereas he is named three times on the very page (P 62) opposite the one which made you feel so uncomfortable, (and rightly so I'm sure), including once in the very sentence before the one you've been citing. At any rate I'm quite grateful to you for being so outspoken about your feeling with R&S, and quite agree that there would be no point whatever engaging yourself in the translation of work which doesn't appeal to you.

Which doesn't mean that there is any more sense, or less nonsense, in the translation project with a book on information theory , which (I am convinced) will still less make this world a better place to live in, once published. I don't doubt a second, Roy, that you are well able to make your living with translations of this and that and don't need me for anything like that.

But maybe the time has come now for you to do something better than playing around with this and that, including earning a living with translating random books (as the offers go), publishing interviews in " lousy magazines" and the like. That's what my offer to you was all about, never mind R& S. Time is ripe for harvest, " and the fields are white with wheat" I'm sure you feel this, and that's why I felt God sent you to my place. Maybe you need some time of quietness first to reap the fruit of your past, as I've done by writing R&S. This quietness, as far as outer conditions go, I am glad to offer you as your host. Maybe at a later time you'll be more interested in some of the stuff I wrote last year, or in some of what is to come, than in what you read so far, and you'll feel like spending some of your time on translating it into English

. At any rate, if you are eager to assist in the oncoming birth of a New World both within you and on the earth at large, I'm sure God will not leave you idle any more than me, if you only take the trouble to listen to what He tells you.

Thank you for your intriguing oldtimish booklet on Ferment Press and the impressive list of your (maybe not even complete) works. I won't read through all of it any more than you through mine, and look forward rather to the samples of your writings which you'll find appropriate.

Yours very affectionately,

Alexander

EPILOGUE, 1995

This letter from Leila Schneps, algebraic geometer at the Jussieu research center in Paris, presently manager of the Grothendieck Circle website, was received in September, 1995 :

September 4, 1995

Hi Roy! What are you up to? I hope this address is still valid for you!

I just visited Yolande Levine and she showed me a couple of new installments of yours. How come I haven't received them? ! Anyway, she was actually a bit huffy that you wrote all about her that way; she thought people would think she was mean to send you away when you were so ill! She's really nice.

So, she absolutely wants me to write and tell you that Grothendieck has been found, so you don't really need to quest for him. Not that he's returned or anything, but Jean Malgoire's been to visit him. It seems he's just fine, meditating and very busy. Looking back at your letter I'd say " sitting in a monastery-of-one somewhere on a mountain peak in the Massif Centrale (Note: he is actually in the Pyrenees) , working vigorously to attain perfect enlightenment" , is a fairly accurate description! No alcoholism in sight; vegetarianism and hand-ground home-grown whole wheat bread is more like it.....Anyway, if you're still interested you could write to Jean at the University of Montpellier (Jean Malgoire, Université Paul Valéry, Département des Maths, Montpellier 34000) and maybe he'll recount some of his adventures to you, (though he's pretty secretive!)Well, let me know what you're doing. Leila