

FERMENT

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Alexander Esenin-Volpin

Russian mathematician -dissident (Part 2)

I. Intuitionism & Finitism

supra-, ultra -, epistemic- , ontological-, predicative-, finitary, -istic, -ismic, schematic -, genetic-, organic-, deontic, alethic, feasible, semiotic- quasi-concrete , with or without schematic variables, with or without schematic metavariables, ordinary variables construed as implicitly universally quantified, placeholders, variable-free substitutions, collations, spreads, non-specific numerals, numerical symbols, apogagic proofs, proof theories, finitary proofs, (, ist-, istic-, ismic-, etc.) , pale imitations of proofs, antecedently convincing hypothetical judgements, Zenonian situations, intrinsically meaningful hypothetical judgements, , formal versus contentual inductions,

instantiations, substantiations, any- every distinctions,
protodemonstrations, demonstroids,
deductoids,..... and **YUK!**

(Lisker's brief precise of finitistic Intuitionism)

The assertion that the concerns of Intuitionism have no practical bearing on the activities of mathematicians may in fact be the highest compliment one can give to it : for Intuitionism calls into question any purpose to mathematics which may be labeled pragmatic. It is not exactly mysticism, nor logic, nor philosophy, nor poetry, though it shares qualities with all of these. It is radical without being particularly 'left-wing', reactionary without hearkening back to any tradition. A version of Intuitionism called Constructivism which demands that all demonstrations must take the form of constructions. Finitism is an even more restrictive form of Intuitionism developed by the extraordinary mathematician David Hilbert. He wanted to do away with infinity altogether. Finally , 'Ultra-finitism' is an exotic, sometimes deep, other times bewildering, yet ever more extreme, form of finitism. This is the field in which Alexander Sergeivitch , son of the poet Sergei Esenin and translator Nadezdha , has gained renown.

Nonsense is one thing that Intuitionism is not: although the public, or anyone not familiar with modern set theory, might be easily led to think so. It is avowedly useless, which is not the same thing. However, that which is useless today may be less useless tomorrow, and even less useless the next day.... and so on.

It evolved in the 1920's out of very real concerns. At that time there was horror and panic in the minds of logicians, philosophers

and mathematicians that the collapse of Set Theory under the weight of bedeviling paradoxes might mandate this useless point of view. These paradoxes are as simple as the barber who only shaves people who don't shave themselves, the Cretan who always lies, the collection of statements which describe describe themselves

(*Example: "This sentence has five words."*) and so on.

...Innocuous in themselves, when they are combined with the hierarchic theory of infinities discovered by Cantor, the consequent nightmare constitutes an assault on Pure Reason as devastating as Robespierre's refutation of the Enlightenment. Intuitionism, developed by a school of Dutch mathematicians in the 20's, notably Luitzen Egebertus Jan Brouwer and Anton Heyting, was a way out, a way at least, through decapitating half of logic, of simplifying the dilemmas associated with infinite sets.

An idea familiar to all mathematicians for over a century, but which appears strange even to most other scientists, and which is very difficult to get across to the general public, is that **infinity has a structure**. It's largely a question of shifting focus: If we say that "infinity" is a quality associated with any quantity that increases beyond all real or conceptual bounds, this definition still leaves open the possibility that two entities which fit this description might be comparable *to one another*. It turns out that *comparing* entities, X and Y, each of them larger than anything we can conceive of as finite, can be given a meaning of some sort, and that one can say that X is *comparatively* larger than Y.

Once this single idea is grasped, an entire hierarchy of cardinal and ordinal numbers can be built upon it. The result is both a revolution in every branch of mathematics - (so that it is simply not possible to go back to earlier notions of the infinite - but complete chaos in the foundations of logic, arithmetic and set theory!

Intuitionism, Finitism, Constructivism, Formalism, Logicism : these are attempts to accommodate the new interpretations of *counting, number and infinity*, with the logic of everyday thinking.

The principal concept motivating the Intuitionism of Brouwer is one that strikes a sympathetic chord in this author, and which I may take justifiable license in expressing thusly :
Mathematics is a branch of literature.

Not to mislead people, the intuitionists actually say that since mathematics is (by their definition), *the science of exact thought* , and since the characters and expressions which are used to write down mathematics, can only approximate this exactitude, that the language of mathematics is therefore as different from 'real' mathematics, as the language of the daily newspapers differs from the events described by it.

Since mathematics, (which Brouwer essentially reduces to arithmetic) , is at the foundation of exact thinking, our written number system is merely a *Bild* , an illusion or crude approximation to the ideal arithmetic that exists beyond all our attempts to transcribe it . This emphasis on number and arithmetic opposes the intuitionists to the system of Bertrand Russell and

Alfred North Whitehead, who wasted years in the sterile exercise of reducing all thought to symbolic logic.

“ Heyting points out that this strict separation between mathematics and mathematical language is one of Brouwer’s most potent arguments.” (Dimitriu, History of Logic, vol.4, pg. 133)

But from whence do we get our ideas of arithmetic, if they are not manifested directly in any tangible or external experience? Brouwer argues that they come to us from **intuition**, a kind of habitat in the soul where these purely mathematical ideas reside. Some other culture might, in theory, develop a different number system, at least in its outward externals, but this pure intuition, which is obviously close to Kant’s *analytic apriori* , is the same for everyone.

To go from this to the denial of the universal validity of the **Law of the Excluded Middle** , is but a step. This law, fundamental to all logical deduction and proof, simply states that the non-existence of an object, relation, phenomenon, implies the existence of its opposite. One does not actually have to uncover, or locate, or construct, or point to its opposite, to know that it exists.

This basic law of classical logic is familiar to anyone who has ever enjoyed a detective story in which the corpse is found inside a locked room, dead from a gunshot wound with no gun in evidence, with no explanation of how anyone else could have entered it. *We don’t actually need to have the murderer in front of us to know that someone must have figured out a way of getting into the room.*

Luitzen Jan Brouwer disagrees: if the corpse is an infinite,

non-constructible set, we cannot claim that it was murdered until we actually find the theorem that did it! *

Again :if I live in a house with a cat and a dog, and some food is missing from the table, and I know that the dog and I were

* **Mathematicians humor**

out of the house all day long, I don't actually have to see the food in the mouth of the cat to know that it is the culprit.... *Unless... or... what if..... there is a possibility that.....* and in daily life there are always unforeseen alternatives.

But if I have two numbers A and B, and I know that A is less than B, then I do not have to know the value of B to state that B is the maximum. In pure mathematics, if there are only two alternatives, one does not have to search for the second one if the first one has been eliminated.

Yes..... *but this assumes that mathematical language is as exact as mathematical thought.*

How do we know, in fact, that our number system is unique? That the 9 pears and 9 apples which I have before me, are really the same number of entities both distinguished and identical ? Are all the apples perfectly distinct? Or have we counted one of them twice? Or is one of the pears really a pear, or rather an apple which, in the dim light, just looked like a pear?

Silly, you might say: *do people really make a living worrying about this sort of stuff?* Or sterile quibbling. Or just : so what? Isn't NAFTA more important? Or the discovery of a gene linked to breast cancer? Or the ratio of the yen to the dollar on

the international market? Yet everyone must admit that there are many situations in which *the exact subdivision of the world into things and their opposites simply cannot be asserted*. In particular, as Brouwer insisted, in the domain of those troublesome infinite quantities which give rise to all the paradoxes of set theory.

Brouwer and his school assert that the Law of the Excluded Middle, and the closely related Method of Indirect Proof that is indispensable to so much of mathematics, should be rejected in any situation in which the entities involved cannot be explicitly demonstrated or constructed, which is always the case for infinite quantities.

“The negation of a general proposition cannot be regarded, generally, as having any meaning.” Only in the finite case, does a negation of a proposition have a precise meaning. Therefore, indirect proof - “apogagic proof” using the law of the excluded middle cannot be applied without reservations.” (Ibid)

Having disposed of Intuitionism in a manner that is perhaps unsatisfactory to all persons who are informed on the subject, and disappointing to all who are not, (*not enough space*), I now move on to administer a similar hatchet job to Finitism.

Finitism is a global term for perspectives on the foundations of mathematics based on the ideas of David Hilbert. Another term in common use is “proof theory”. Finitist ideas are as old as the quarrels of Empedocles, Anaxagorus, Heraclitus and Aristotle over the antinomy of “actual” versus “potential” infinity.

Should one regard the infinite as a quantity or quality which 'really exists', so that one can say there is an infinite amount of dust somewhere or other, or infinitely dense matter, (the Black Hole), or infinite local or global space (continuous without gaps or holes)? Or is the expression, 'the infinite', only a convenient shorthand for the idea of a quantity that goes beyond any conceivable bound, and thus in this sense, only 'potentially' in the world?

Before Cantor's discoveries, a scientist's personal stance on the actuality or potentiality of infinite entities didn't really matter that much . Even in the calculus, based on the theory of limits, it was not necessary to state that a certain number reached an infinite value, but only that it expanded beyond all detectable finite values. This could usually be transformed into a quantity that 'goes to zero" ; a perfectly respectable operation.

Yet in the Cantorian arithmetic, one actually 'counts' with infinite sets. They can be compared by the method of 1-to-1 correspondence , and it can be shown that some sets cannot be counted by means of others ; that indeed there is a complicated hierarchic structure to these infinite sets (inaccessible cardinals; huge cardinals; compact cardinals ,....) . The *theory of counting* cannot side-step the *actual/potential infinity dilemma* of classical Greek philosophy in the way that was possible even for the calculus, the theory of limits, and the study of continuity.

The Hilbert finitists have come down in this debate on the side of potential infinity. The proof theorists insist that , since our minds reason about finitely many objects, in a finite time; and since our mathematical proofs can only take finitely many steps,

only *finitary proofs* can be allowed for all the theorems of logic and mathematics. What constitutes a finitary proof depends on one's personal prejudices about the finite, so that we have epistemic-finitists, ontological-finitists, game theory finitists, deductivists, *finitistic* logic (as opposed to *finitist* logic), finitistic intuitionists, (combining Brouwer and Hilbert), semiotic finitists, and in the case of Yesenin-Volpin, ultra-finitistic intuitionists. I can't go into these subtle distinctions here but refer the interested reader to the illuminating book by Shaughan Lavine in the philosophy department at Columbia University, **"Understanding Infinity"**. As far as I know it's not yet in print, but he runs Xerox copies of the manuscript.

Hilbert was aiming for a consistency proof of his finitary mathematics. Gödel, once again, put an end to these hopes; his 2nd Theorem shows that no theory strong enough to serve as a foundation for set theory can prove its own consistency. This did not however spell the demise of the Hilbert program, because it was discovered that pieces of the finitary approach could be applied to various branches of mathematics, including computer science and complexity theory, so that once again we see that a very abstruse branch of mathematics turns out to have practical applications.

Yesenin-Volpin's ultra-finitistic Intuitionism deserves independent treatment. Its combination of poetry, mysticism, medieval scholasticism, pedantry and flashes of profound insight set it apart from any of the systems described above, so many of which bog down quickly in tedious fine distinctions. We will

therefore return to Volpin's world system in the next and last article of this series.

Note: When referring to his father, the last name will be spelt "Esenin", as it is found in the anthologies. However the son seems to have adopted the spelling "Yesenin", in the U.S., and I will henceforth use this when referring to him: it also makes it easier to tell them apart.

II. Marianne Amacher

Back-flash : This whole story really begins in 1963 at the University of Pennsylvania in 1963. After receiving a degree in mathematics, a subject that by 1956 , (after 5 years of fanatical absorption and devotion) , I'd lost all interest, thereby upsetting lots of apple carts, filled though they be with mangoes and peaches, I continued to hang around the University of Pennsylvania for another year, merely because I had no idea of what to do or where to go.

That this state of limbo was permanently incurable I could not at the time have known .

Then in 1965 I moved to New York City, burned my draft card and , eventually, went to jail - but that is another story. From 1962 to 1964 , my life was largely governed by a life-long infatuation with music. The idea that I might shift my artistic energies from literature to music took root at the MacDowell Colony for the Creative Arts in the summer 1962 , in the company of such notables as Leonard Bernstein, Louise Talma, Nikolai Lopatnikoff and others musical types. Upon returning to the

University of Pennsylvania, I filled my roster with music courses and neglected everything else - all very typical of me.

It explains why my college transcript looks like the White Sands weapons testing area of New Mexico.

One of the courses which I audited was the Improvisation Seminar of the distinguished Philadelphia composer, George Rochberg. Persons who have been subscribers to *Ferment* for several years already know that I never use a word like 'distinguished', save in a heavily irony-laden rhetorical vein. Dr. Rochberg, then chairman of the music department after years of hunching over the scores being prepared for publication at Theodore Presser's, represents, among composers, the paradigm of a certain type of reactionary professional. He knows his business all right, but that also appears to be his major handicap. He has considerable problems dealing with performers, students, and other composers. His enormous *competence*, to which I give eyewitness testimony, in all things musical, makes it almost impossible that he should ever give credit to any product of anyone else's musical imagination that does not take flight from the stratosphere of his own erudition; an attitude not without repercussions, largely negative, on his own musical imagination.

Among the numerous victims of his unshakable certitude were myself and the colorful and imaginative composer, Marianne Amacher.

Your humble scrivener. this author, doesn't really count. He never intended to become a full-time composer, (though he has in fact since gone on to publish some music.) He was primarily

interested in extending his artistic grasp over the exciting ideas and techniques of 20th century composition, some of which could be applied to prose and poetry; this activity has been rather successful, (and is through-continuing.)

What I mean to say is, that Rochberg just dumped on me whenever he found a chance to, apologizing every now and then because it was in rather bad taste to attack the weak, the helpless, or the -'ahem' - *incompetent*.

Marianne was a different case. She was then doing some rather exotic experiments twanging piano wires and feeding the resulting sounds through tape-loops (these were pre-synthesizer days). The results were engaging: even Rochberg conceded that she came up with a clever idea once in awhile; they were invariably attributed to accident. Without the least self-consciousness or embarrassment, he described her work to our weekly seminar, (in her absence of course), as an example of what could be done by someone with no knowledge and limited ability, just by "fooling around".

I don't know how many awards, grants, scholarships or citations she has racked up since then: quite a number of them. In 1981, when I met her again after a 20-year hiatus, she was just preparing to go off to West Berlin, when she had been designated "composer for the city", for an entire year. And we know that the Germans, whatever their faults, do not waste much time on lightweights in the musical arena. Ah well....."competence", or "excellence", or "distinction"; these are all very wonderful things; but really, in the arts, the only thing that really counts is

vision..granted that the eyes must be trained to see (Ferment, all of Vol. VII) .

In September of 1981 , Marianne was in residence at the Creative Music Studios in West Hurley, New York, (a few miles from Woodstock). She had been given a few rooms to house herself and all her electronic equipment. There she passed entire days immersed in oceans of shrill, ear-shredding noises that would drive most of us deaf . But for her there was 20 years of accumulated resistance ... (as Yeats tells us , "Mithradates, he died old.")

She would pause from her labors for lunch, in the early afternoon. I would join her then and we tried to catch up on old times.

Marianne has always had a thing for mathematicians; she probably knows more of them than I do. She likes logicians in particular, perhaps because - and this must surely come as a surprise to many people - they have the most poetic and wildest imaginations in the whole mathematical tribe. They can also be notorious pedants, and what is really surprising is that the two kinds of mentality can live quite well in the same person. She knew of three of them in this region of the Hudson Valley : Jim Geiser, Christor Hennix and Alexander Sergeiiivitch Yesenin-Volpin.

Speaking of Alex, Marianne painted an exotic picture of some wild Russian mathematician doing impossible feats combining mysticism, vodka and the foundations of logic, a kind of Rasputin of the Empire of Intuitionism. Leon Kirchner, the composer, she

assured me, once invited him to an exclusive party in Cambridge, Mass. Kirchner was so stunned by the man's brilliance that he sat speechless throughout the entire evening. To believe her, he drank enough vodka to trivialize the feats of Dylan Thomas, wrote poetry more revolutionary than his fathers', had virtually taken on Stalin single-handedly, then developed his mathematical ideas during 30 years in solitary confinement on the Kamchatka peninsula. Now he was unable to find a job in any American university because his ideas were too unorthodox for the reactionary pedants who fill mathematics and philosophy departments. He would have starved to death but for the altruism of a small circle of devoted students who kept him alive.

I could meet this barbarian genius, she said, if I visited the State University of New York at New Paltz. Alexander Sergeiivitch was staying with the Geiser brothers as a summer guest, while Christor Hennix, a Swedish visionary who also taught mathematics in the SUNY Math department, was working with Jim on a project to translate Alex's writing on logic from the Russian.

III. SUNY-NEW PALTZ

One of the virtues of modern architecture from the standpoint of the writer is that so many buildings are so easy to describe.

The offices of the Mathematics department of SUNY-New Paltz begin on the 7th floor of a sleek redbrick and glass 10-story module called the Faculty Tower. The above assertion just about says it all.

The tower's innards are laid out around the familiar core

principle, with a pair of poorly functioning elevators using up 30% of the available space on each floor, a narrow corridor circulating its perimeter, and a dozen offices garnishing the outside track.

The mathematics administrative office was, and still is, off to the right from the elevators on the 7th floor. I could only have been there a few minutes before Christor Hennix himself walked in. He wore a red-and-white checkered shirt and brown corduroy trousers. He was of medium height, in his thirties, his face of markedly Swedish features covered with a stubble growth of red beard. His eyes, full of wistful ambivalence, transmitted a gaze of benign intelligence. His manner was both energetic and impractical, imaginative yet pedantic, (a logician).

In short, there was little about Christor that one could not recognize from reading 3 Ibsen plays with a Strindberg thrown in.

Grasped firmly by both hands was a 700-page document, a compilation of materials about Intuitionism that he wanted to Xerox, from which he intended to prepare a 40-page reduction for a conference immanent in Holland on the occasion of the Luitzen Egebertus Jan Brouwer centennial.

The photocopy machine in the Faculty Tower was out of commission. There did exist another machine on the campus at that time, in the Administration Building, a giant vertical ice-cream sandwich sitting in a terraced plaza in another part of the campus. However, it would not be possible for Christor to use this machine without receiving a special in-house SUNY grant for the purpose. The whole procedure was highly irregular, and Paul Zuckerman,

(*Another story - God, what a story!*) , then chairman of Mathematics, told Christor to be prepared for a long bureaucratic delay of days, perhaps weeks.

Christor was incensed; it meant that he might possibly be obliged to rake through the 700-page bundle and isolate 100 pages or less from which to make his 40-page precise. Why should a serious researcher - like himself - used to the way things were done at M.I.T. - where he had done time - have to dissipate his precious energies on menial chores.! The school could just attach the costs to his original NSF grant!

Railing against the secretaries was of no avail. He was advised to begin filling out the forms immediately. They didn't happen to have them around the office; surely his own secretary could get them for him? This rekindled his ire: she was , at this very moment wandering about the campus somewhere trying to locate them. Christor invited me up to his office so that he could have somebody to talk to while waiting at the telephone.

As we walked up two stories to his office on the 9th floor, Christor offered to take me later out to visit the Geisers and meet Alexander Yesenin-Volpin. He was glad that I had showed up for another reason as well: Jim Geiser had lent him his MoPed. It had broken down. Between the two of us we could push and pull the thing up the two steep hills separating the campus from the village limits of New Paltz, then walk it another mile down Ohioville Rd. to the Geiser mansion.

IV. Christor's Office

Mathematicians' offices frequently excite a singular fascination on the lay imagination. One draws comparisons with the chamber of the angelic figure in Dürer's *Melancholia*, the laboratories of the medieval alchemists, the archives of the civil services of decadent empires. In extreme cases, their appearance bears magnificent witness to the agonies of a fundamental discipline suffocating under its own prolixity .

Christor's office was not disappointing in this respect. Professional mathematicians receive hundreds of manuscripts, magazines, pre-prints and reprints every year in a spectrum ranging wide from cranks to colleagues. Almost none of it gets read, but the materials are never thrown away either , until after , at the least, a profound inner struggle: there is always the corrosive feeling that one may be missing something essential by discarding anything .

Textbooks, monographs, correspondance covered the desk and floor in towering, disorienting heaps; reprints and other smaller papers were stuck on shelves and in racks of pigeonholes against the walls.

The true irony of this situation is that mathematicians, like most scientific researchers, are really only interested in their own work. Most of the communications heaped around the room would, however brilliant, never be read... yet that nagging feeling persisted... is the *crucial insight* perhaps to be found on page 274 of the fourth manuscript from the top in the upper left hand corner of the desk??

Seated in his office, Christor called up his mentor, (I hesitate to use the word, 'guru'), in New York City: Henry Flynt. Actually I knew Henry Flynt. He was part of the general avant -garde music scene in the Soho area that included people like Marianne, John Cage, Robert Kostelanetz, Franz Kamen, Henry Brandt, Jackson MacLow, and others. I had visited him in his studio about three years ago; Christor had in fact been present at this meeting, though this only came out later in our conversations.

I could use up a bit of space in Ferment right now, just to give a brief summary of Henry Flynt's ideas about Everything: since Henry Flynt expected all others to propagandize his ideas at a matter of course, I have no intention of doing so. My working philosophy is that I will generally tolerate any combination, however lurid, of Marxism, Eastern Mysticism, Modern Logic, Relativity, Quantum Theory and Atonal Music : but I will not tolerate unrelieved bombast.

As he talked on the telephone, Christor handed me a few short monographs to read, background for the encounter with Yesenin-Volpin. One of these was an essay by Flynt which I dropped onto a heap on the floor; the others were essays by Brouwer and Christor. The essay by Brouwer was about mysticism, wafting a strong odour of Schopenhauer. It had nothing to do with mathematics or logic; rather it took the form of a polemic designed to convince people that all tangible and visible things were intrinsically evil.

The article by Christor was about music. I later learned that Christor is quite a good jazz percussionist. His ideas about

composition however are quite arid and abstract. This article dwelt at some length on his **principle of sufficient reason** for the compositions of the future . No note of any musical composition ought be written which does not arise out of dire necessity from all previous notes in the composition. Christor's compositions made use of incredibly long notes which he wished the auditor to idealize as infinite notes; these had been trans-substantiated by diddling around with the overtone series on them.

A call finally came through from his secretary. He would have to wait at least until the next day for permission to photocopy his 700 pages. Christor and I then took the elevator down to the first floor of the Faculty Tower.

The parking lot was across the road and on the other side of . SUNY's squat, dark, pugnacious and largely unusable Physics & Geology building. There stood the MoPed, an obstinate vehicle if there ever was one. The reddish enamel and chrome Peugeot was an unwieldy deadweight, designed specifically to resist spatial translation through any external initiative ... a bit like a writer in other words.

A brace of pedals, as useless as the wings of the duck-billed platypus, jutted out from the base of the apparatus; no doubt the instruction book that came with it indicated that these were to be used in just such an emergency.

All that Christor could give by way of explanation was, "It ran out of gas." Three blocks later, after we rolled it off campus and were starting up the first of the two hills, he turned to me and said:

" I think it ran out of gas. I'm not sure."

“ Why don’t you unscrew the cap on the gas tank and look?”

“ Okay.” Christor stared at it. “How do you take it off? Are you supposed to twist it, like this or that?” He stood amazed as I screwed the cap off counterclockwise. By way of apology he said,

“ I’m helpless with anything mechanical.”

Christor gripped the handlebars and peered inside:

“There’s something swimming around in there. How can we tell if its gasoline?” I’d picked up a stick from the road and dipped it into the cavity. He became frightened.

“ Is it all right to do that? Won’t it hurt the engine?” I removed the stick and held it out to him. The end was soaked up to a length of about four inches

“There’s lots of gas in there.”

“Then why can’t I get it to run? Should I try it again? The bike’s not mine; I borrowed it from Jim Geiser after I sprained my back.”

Each of us took turns trying to start it up, without success. We then returned to pushing and pulling it up another mile before turning left just beyond the town limits, onto Ohioville Road.

A walk of another mile and a half awaited us through bucolic farmland. In a sky the color of cosmic blue irises the clouds, light and glossy as porcelain water pitchers, dangled as from the kitchen rack of a loving hospital ward. Our conversation turned on Intuitionism, Yesenin-Volpin, infinite musical notes, Henry Flynt and kindred subjects.

Christor tried to convince me that Henry Flynt had introduced an idea into contemporary logic that threatened to destabilize 3 millenia of civilized thought.

“ The moment you give up the assumption of the stability of the signs”, he explained, “you lose your capacity to formulate anything whatsoever.”

“ Could you explain that one to me?”

“Well - it’s very difficult for the layman . Just knowing classical mathematics isn’t enough.” He pondered the question:

“Well ... Suppose you write down “ $2 + 2 = 4$ ” on a sheet of paper. You come back to it the next day and discover that it says “ $1 + 1 = 4$ ” ! What has happened, you see, is that the signifier for the idea of “two-ness”, now signifies the idea of “one-ness”! Does that give you some idea of the concept?”

“ Well!” I looked at him not sure whether to be impressed or skeptical “ So that’s what Henry Flynt means by the stability of the signs?”

“ Not exactly, but something like that. He’s applied it to music, politics, sociology , modern physics and aesthetic theory.”

“ Let me see if I understand you correctly. Is it possible, for example, that the works of Galois had been transformed into the works of Gauss sometime during the 19th century so that we in the 20th century believing we’re studying the works of Gauss when we’re really studying the works of Galois?”

“ You’re getting close. All thoughts and perceptions are based on the assumption of the stability of the signs. Without that you must reformulate the entire history of knowledge.”

Every time we came to a bend in the road, Christor informed me that the Geiser’s house was just beyond it. Finally he admitted that he didn’t know exactly where their house was, but he would recognize it once he saw it.

“ Unless”, I suggested, “ it was unstable and changed into something else since this morning.”

Yet, when we finally got there, it turned out that the Geisers’ house was still the Geisers’ house, that there was a garage for parking the MoPed, that rather than the Wicked Witch of the East coming to the door to chase us away, it was only Peter Geiser telling us to hurry into the house because dinner would soon be ready.

(2nd in a series of 3 articles)

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