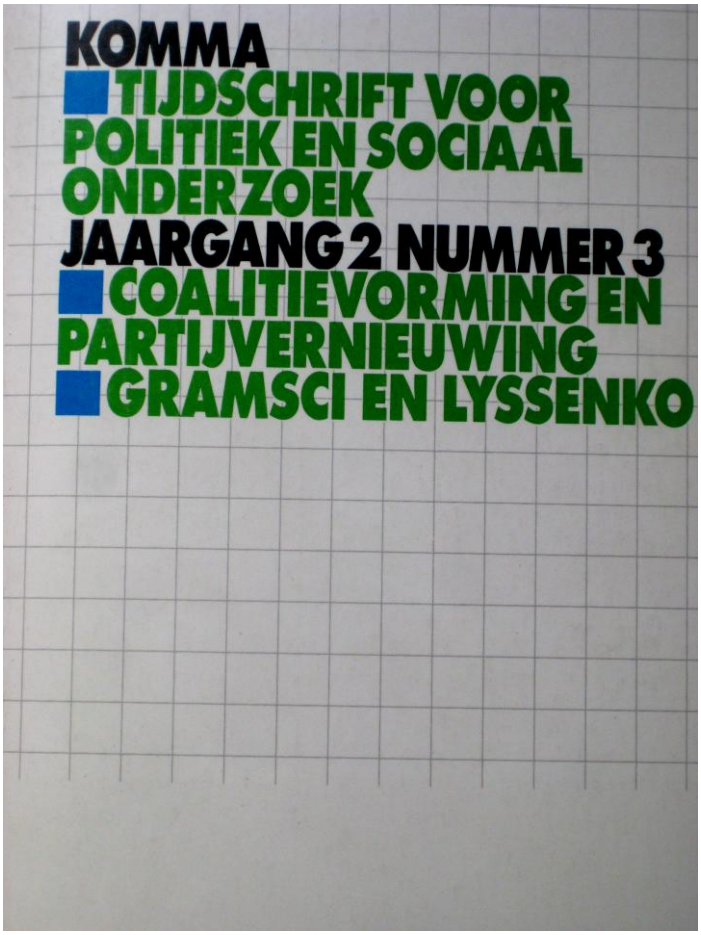
The Lysenko Affair (1928-1981)

"De Lysenko Affaire (1927-1981)", Komma, December 1981. Verkort en vertaald in het Engels als voorzet voor een mogelijke bijdrage aan een internationale conferentie over Lysenko in New York, 4 en 5 december 2009.



A publication about Lysenko. Most readers will ask: who is that? Some will have met the term 'Lysenko Affair' somewhere[6].

The Lysenko Affair has, amongst other aspects, much to do with the relationship of (natural) science, materialist dialectics and communist parties. For me this relationship was the motive to go deeply into the matter. I presumed that a fundamental cause was at stake, that had not lost its actuality. The reading of the *Prologue* of Althusser in a recent book about Lysenko confirmed my presumption[7].

Meanwhile the sources about the affair are abundant[8]. The curious thing is that the principle sources are written from very different angles of incidence and that they are contradictory on

[6] Paul Scheffer in KOMMA, 1979, 1 and 1980, 1 about *The politics towards the intellectuals of the French Communist Party (PCF)*; Jean Ellenstein: *History of the Stalinist phenomenon*; Anet Bleich, Max van Weezel: *Go to Siberia yourself*; Ger Harmsen: speech on a seminar (1980) about Stalinism, and so on.
[7] Louis Althusser: *Ended history or history without end?* Te Elfder Ure, 25.
[8] Zhores Medvedew: *Rise and Fall of T.D. Lysenko*, New York 1969; David Jorawsky: *The Lysenko Affair*, CAmbridge 1970; Dominique Lecourt: *Proletarian Science? The Lysenko Affair*, Paris 1977; Richard Lewontin

major issues. Though, when relating all the data and events an image imposes itself: the pieces of the puzzle match. But the puzzle is far from completed.

My method in this essay is that I shall make ever wider circles around the Lysenko Affair, drawn on the basis of ever more data. The affair itself appears to be the top of an iceberg.

1. Rise and fall of T.D. Lysenko.

The Lysenko Affair begins in the Soviet Union, about 1928. That is the year of the start of the first Five-year-plan. The affair has never ended, but seems to end in 1965 when a *Report* of a research committee pronounces a devastating judgement on the – especially post war – work of Lysenko and the movement that carries his name. Lecourt distinguishes a number of periods in the development of Lysenkoism.

In the first period (1927-1929) Trofim Denisovitsj Lysenko (1898-1976) appears on the stage. A biologist, taking part of a traditionally Russian current in agricultural technique that makes studies of the influence of factors like temperature and humidity on the time of growth of the vegetation. That is not an 'academic' subject! Because of the extreme cold of the frozen soil frightful losses of winter wheat are suffered in the Soviet Union. Lysenko suggests to keep the whetted seed of winter wheat on low temperature and to sow it in spring, outwitting the winter frost. After small scale successes this idea is applied on a very large scale and appears to be useful in some parts of the country. The same is valid for some analogous techniques of a later date like the 'summer planting' of potatoes. These techniques grow widely known under the term 'vernalisation'. Lysenko and his adherents direct themselves in articles to the interested farmers on the newly founded collective farms and give advice about the cooling of seeds, the use of the thermometers, the regulation of irrigation, and so on. The new techniques are widely appreciated. The theories that Lysenko wants to connect to his techniques are disregarded with a smile by the scientific Soviet world. And fundamentally criticized too (Maksimow).

In the second period (1929-1935) Lysenko completes the theory that matches his technique, the 'staged development of plants'. He withdraws completely from the academic science and constructs his theory on the results and ideas of Mitsjoerin (1855-1935), a pioneer-arborist who has been made a symbol of a fertile Russia by the Soviet state. He works by grafting from shoot to trunk (the vegetative, nonsexual crossing) and achieves a series of valuable crossings, between pear and apple, melon and pumpkin. Mitsjoerin was very sceptic about the results of biology as a science. Especially the new genetics did not fit into his practice. He spoke of 'the breaking of the heredity' when he referred to his risky crossings of far removed species and the appearance of ever new und unexpected forms of life. Lysenko uses the practical results of Mitsjoerin as a decisive argument against the sexual view of heredity in modern biology. He defines heredity as "the study of the causes and the conditions of the rise

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and Richard Levins: *The dilemma of Lysenkoism*, Natur och Samhälle 1, Lund 1978; J.P. Regelmann: *The history of Lysenkoism*, dissertation, Frankfurt 1980. I shall use the data from these sources, but I will not refer to them continually.

and development of the plant in a certain stage; the study of the way a plant reacts *on his surroundings*." His idea is that heredity can be changed ('broken') by creating abnormal conditions during development. In this way new hereditary characteristics can be obtained. The change of plants and animals 'as desired' will be possible. By consciously exposing vegetation to extreme frost for example, new generations of these plants can resist the extreme frost.

With this view of 'heredity' Lysenko turns himself radically away from the results of thirty years of biological science. Since the rediscovery around 1900 of Mendel's 'pea laws' a more precise description of heredity had grown universal. The carriers of heredity were discovered ('genes', later identified as parts of *material* structures, the chromosomes: hence genetics). It had become clear to geneticists in the thirties that the purposeful change of heredity, given the present state of knowledge and techniques, was not possible. Because the Lysenkoists refuse both the official biological science and the methods used, they judge that the debate with scientists is utterly futile. Mathematical methods, statistics, control experiments, and so on, are rejected. Around 1935 the ideas and techniques of Lysenko fuse with 'dialectical materialism'. This fusion of the Lysenko doctrine with the official ideology of the Soviet state eventually makes any form of cooperation between Lysenkoism and genetics impossible.

In the third period (1935-1948) the struggle takes place for the absolute hegemony of Lysenko's views. The philosopher Prezent plays an important role in this phase of development, next to Lysenko. Genetics and the opinions of Mendel, De Vries, Morgan, among others, are labelled as 'wrong', but in the situation of 1935 wrong becomes 'false'. 'Mendelism-Morganism' is pictured as a capitalist delusion against the new biological doctrine of the first socialist state. In an article by Lysenko and Prezent, 'Plant culture and the theory of the staged development of plants', the theory of genetics is attacked because it fails completely in its application to the practice of agriculture, and also because of the 'bourgeois character of its methodology'. Geneticists are speculators: this 'false' science should be forbidden. Lysenko writes: "We deny (...) the existence of particles of heredity (...) in heat there are no particles either..". Indeed, Lysenko and his followers do not only deny the existence of genes, but also of atoms, molecules and plant hormones (!). All theoretical thinking is thrown away. Prezent broadens the attack in 1937: all geneticists are "Trotskyite wreckers, who become infatuated with the most recent propositions of scientists abroad". A terrible accusation, uttered a few days after the speech of Stalin in the Central Committee about the necessary liquidation of Trotskyites in the party. There happen to be hundreds of thousands of them, almost the entire old Bolshevik avant-garde is included. In 1936 three Jewish geneticists, leaders of internationally acclaimed institutes of genetics – Levit, Max Levin and Israel Agol – are arrested and murdered. In 1938 the two presidents of the Academy of Agriculture are arrested, and Lysenko becomes president in their place. The fight for the absolute power finds its zenith in the arrest and condemnation of Vavilow, plant physiologist and geneticist of world fame, leader of a 'Department of Agriculture' that had been developed since 1922 with the outspoken approval of Lenin. Vavilow is condemned on behalf of sabotage and famishes in jail (rehabilitation in September 1955). Lysenko demands "the expel of bourgeois science from all institutes.."

But still the textbooks in schools continue the teaching of genetics, and the names of Mitsjoerin and Lysenko are not even mentioned. And moments occur when higher party-instances reproach the Lysenkoists 'anti-intellectualism'. However, in 1948 Lysenko cum suis gain total victory. On the 'August session' of the Academy of Agricultural Sciences genetics becomes a forbidden science. Because of far reaching state intervention a majority of members agrees, for the first time, with Lysenko. Geneticists who do not want to leave their science, like Rapoport or Sabinin, lose their party membership and job. All biology textbooks are rewritten. The whole stock of genetic material is destroyed. Everywhere appear portraits, sculptures, monuments of Lysenko. The state choir brings an ode: "He protects us from the attack by Mendelism-Morganism." Genetics goes underground. With the great example of the new socialist biology of Mitsjoerin-Lysenko the slogan of the 'two sciences', the 'proletarian' and the 'bourgeois' science, is propagated and the Kominform imposes this ideology on all communist parties. But the zenith of 1948 foreshadows the end.

The fourth period begins in 1948 and continues until today. The Lysenko who has reached absolute power, stands at the same time at an ever wider distance from the agricultural practice that he owed his rise. New practical results stay away. Lysenko has to seize to ever more curious ideas and his receipts for agriculture and breeding grow ever more fantastic. The attack on biology, with the help of soil expert Williams and cell expert Lepeshinskaja, goes nevertheless further. In opposition to Darwin they spread the opinion that there is no such thing as 'struggle' within a species but of mutual 'sacrifice' of the individuals. The use of fertilizers (and agricultural chemistry) is disputed: the structure of the soil would be much more important. The biologist Lepeshinskaja and her collaborators have even reached a series of hardly believable transformations: rye into wheat, cabbage into roots, chickens into rabbits. Lysenko writes: "Stalin teaches us (...) that tiny quantitative changes can turn into rapid qualitative changes. (...) This enables Soviet biologists to realize the change of one plant into another." Some learned followers change rapidly into conscious crooks.

At the same time a counter movement rises, that eventually gets a growing support from the agricultural world. One of the most disastrous failures of Lysenko's mutual sacrifice within the species is the project (1949) for the planting of trees in clusters: 'The great Stalin Plan for the transformation of nature'[9]. The trees, that have been planted much too close upon each other, refuse to sacrifice mutually for the benefit of the species. In the *Prawda* the first, and only, critical comment appears after many years of Lysenko Affair. The criticisms and genetics flourish until they break through, after some cycles of tolerance and interdiction, in 1964. Chrusjtsjow, who has defended Lysenko against criticism by all possible means, is 'unanimously' pushed away from his leading position on the 14th of October. The day before the geneticist Rapoport is approached: within 24 hours he has to write a full page article about genetics for a leading newspaper. During thirty years every article that would mention genetics is censured from every paper. Now, within a few months, all papers publicize appreciating articles about genetics, and a current of criticism on the 'pseudoscience' of Lysenko. The life story of geneticist Lebedewa is popularised by Dudintsew under the title: "No, the truth is inviolable." The assumed results of the Lysenko school are examined. A state

[9] Interview with Lysenko in the Dutch monthly of the CPN, *Politiek & Cultuur*, January 1949.

committee gives a devastating judgement: it was the favourite method of the Lysenkoists to claim matters and to throw up a lot of stories as long as it looked good. Any analysis had been absent for all those years.

At the celebration of the hundredth birthday of Mendel's genetic laws, in 1965 in the Czech Brno where the monument of Mendel has been reinstalled in haste, a big delegation of Soviet geneticists is present. A study of Zhores Medvedew, communist and geneticist, that looks back in a rather flattery way on fifty years of Soviet biology, is forbidden. The book appears in 1977 in New York, and after travelling abroad Medvedew is refused the admittance to the Soviet Union. The Lysenko Affairs is continued.

After this sketch many questions arise. I shall discuss some of them in this paper:

a. Which social factors have played a role in the confrontation between genetics and Lysenkoism? (2)

b. How can the rise of Lysenko be understood: why has his work been sanctioned, as early as 1935, by parts of the Soviet state apparatus? (3)

c. How can we position the view of the 'two sciences' (1948) against the background of the declining star of Lysenko in the practical sphere? (4)

d. How does the ideology of Lysenko relate to the ideology of the Soviet Union and the version of Stalin of 'dialectical materialism'? (5)

e. Which conclusions can be drawn from the relation between communist party, science and materialist dialectics for the new program of the Communist Party of the Netherlands – *also* on the ground of the experiences of the Lysenko Affair? (6)

2. <u>The political debate about genetics and Lysenkoism in the thirties</u>.

In the thirties of the twentieth century there was much debate about the theories of Darwin and Mendel. From prominent communist scientists theoretical works appeared like *Heredity and Politics* by the Englishman John Haldane, *Biology and Marxism* by the Frenchman Marcel Prenant of *The Race Question* by the Dutchman Gerrit Kastein. Outside the Soviet Union the angle of incidence was not the practical application in agriculture or breeding. The books contain the positive formulation of the great (dialectical) synthesis in biology, and criticize the coarse abuses that the Nazi and racist ideology tries to make of the results of modern biological insights. A quote from Marcel Prenant will elucidate: "What Marxists attack is the false fascist science, also the bluff of racist literature, that begins with a chapter of the genetic laws of Mendel, and continues by pretending that these laws can deduce the

fascist conclusions of the superiority of the chosen race, the necessity to preserve this race and the right of the suppression of the inferior races.[10]" The abuse of biology was threefold.

The first point focuses on one of the central points in Darwin's views, often unhappily resumed as 'the struggle for life'. Darwin supposes that the natural selection of animals and plants finds its way through 'struggle' between and within the species. Marx and Engels often made the annotation that there was much harmony next to struggle, but – more important – that this law from the world of animals and plants never could be applied to the community of men because that differs qualitatively from the flora and the rest of the fauna. The limited natural resources of all animal species except mankind make struggle a necessity next to harmony. But the human society breaks through this dependence of nature, and is characterized by purpose, freedom, means of production, technique, class division, etcetera. Well, the fascists had made this 'merciless' struggle for existence a keystone of their ideology: "The struggle of the different dispositions, understood in their full meaning, seems to us the most important feature. The struggle of the different race souls is for us the axis of the history of the world and the culture", wrote Nazi-ideologist Rosenberg. In the biological race theory of the Nazi's the 'struggle for existence' leads to an inevitable conclusion: war!

In the second place the conclusions from Mendel's heredity doctrine were involved. One conclusion of his laws was that the hereditary ability ('genotype') of living organisms was transferred unchanged from generation to generation. The race ideologists presumed thus that the 'Nordic race' had indeed kept its 'race soul' from the Teutonic antiquity to the actual German *Volk*: "The members of a race always produce their equals", presumed Nazi-ideologist Günther.

The third aspect was 'eugenetics', the breeding of a healthy (blond, tall, blue-eyed) race. The additional complication was that eugenetics had been on the agenda of (communist) biologists in the Soviet Union in the twenties. Eminent scientists like Koltsow, Serebrowski, Agol, Levit, and others, had written and thought about the breeding of a healthy, socialist Soviet people. Serebrowski had proposed a birth policy, that distinguished between sexual pleasure and procreation. The reproduction should proceed in the context of social planning with the assistance of artificial insemination. Such discussions were stopped by government instances by the end of the twenties: society would not become better by the change of biological heredity but by the change social conditions. Still, later – in the struggle with Lysenko – , because of these publications geneticists like Levit and Koltsow would be diffamated during their political processes for being 'racists' and 'fascists'.

At least three types of misuse and misinterpretation. The debate about questions of heredity got a heavy political load. But it had to be entered to make the results of science publicly known, and to attack the Nazi abuse of biology. In publications of Haldane, Rostand, Kastein, Prenant, Levit and many others, the scientific state of affairs was shown and invariably a sharp distinction was made between the real theory of biology and the racist fallacy. I want to give the arguments of the Dutch scientist Gerrit Kastein, a defense of biology on a high level

[10] Marcel Prenant, as quoted by Gerrit Kastein, *The Race Question*, Amsterdam 1938. Kastein was a physician at The Hague, communist, leader of an armed resistance group, killed by the German Gestapo.

of argumentation against racist delusion. Kastein gives a survey of the discovery of Mendel of the 'hereditary factors' in his experiments with green and yellow peas, white and grey mice, etcetera. Mendel could not have a clear view of what these factors might be. But, after the development of microscopy with its images of the inner material of the cell, the so called 'chromosomes' could be seen (and colored) in the nucleus of the cells. Morgan discovered in his experiments with the fruit fly Drosophila that these chromosomes are the carriers of the hereditary abilities ('genotype'). Certain parts of the chromosomes, the 'genes', appear to correspond with certain hereditary factors. They are the material carriers of the theoretically supposed 'factors' by Mendel (a more materialist outcome, philosophically spoken, is not possible). But a huge problem arose when combining the theory of Darwin ('the change of the organisms') with the heredity doctrine of Mendel ('the unchanged transfer of the factors'): is there a connection between continuity and discontinuity, between preservation and change?

In this question the Dutchman Hugo de Vries, in 1900 one of the discoverers of Mendel's forgotten heredity laws, suggested the synthesis between the two seemingly contradictory theories. While experimenting with the teunisbloem, he noticed that new forms of the flower develop under his hands without crossing it with other flowers. In opposition to non-hereditary variations in the appearance ('phenotype') of plants and animals under the influence of environment factors ('one ability can show itself in different forms'), these 'mutations' appear to be hereditary changes ('genotype'). Sudden variations in the genes, 'mutations', must have occurred. The following solution to the problem breaks through: the evolution theory of Darwin and the laws of Mendel complete each other when the viable and – haphazardly – environmentally better adapted mutants win the 'struggle' within their species and change the species a little bit in their direction. In the thirties Muller discovered that the concentration, the percentage of the offspring, of these mutants can be augmented under the influence of Röntgen radiation and of specific chemicals: the environment has after all a direct influence, but without direction or purpose…

The reader will notice that this synthesis in biology, told by Kastein, is advocated with much self confidence. No wonder. The Marxists, with materialism high in their banners, saw in these scientific developments a confirmation of their philosophy. At first there was the material basis of the hereditary factors, then came the empowerment under the microscope of Darwin's materialist development theory, and the wonderful finale was the dialectical synthesis of the mutually excluding theories of Darwin and Mendel by the mutation theory of De Vries. The racist fallacies of the Nazi's were proudly contradicted: both scientifically, morally and politically. A publication like the book of Marcel Prenant for the university of laborers, *Marxism and Biology*, generated enthusiasm for Marxism in the soul of many a scientist[11]. In the Soviet Union after 1917 a generation of prominent geneticists was booming. Their work reached in an astonishingly short time worldwide recognition and sympathy. The American biologist Muller, a Marxist and the foremost pupil of Morgan, came to the Soviet Union to work for several years at its genetic institutes. The World Congress of Genetics of 1937 would be held in Moscow.

[11] Marcel Prenant, still quoted by Kastein.

That is the situation in biological science on the moment that Lysenko imposed himself in the Soviet Union. The Lysenkoists declined theoretical thinking, mysterious particles such as genes do not exist. Genes were a bourgeois fantasy: 'everything' in the plant has hereditary abilities. With the proper 'education' hereditary changes of plants and animals can be induced at wish. A curious answer was given to the racist abuse of genetics. The Lysenkoists cannot deny the racist arguments theoretically. Lysenko 'scrapes' those parts of biology that can be misused by the Nazi's: Darwin's 'struggle for life', because that leads to war, and Mendel's heredity laws because they lead to racial delusion; he includes medical genetics and 'eugenetics' in the racial delusion. Prominent Soviet geneticists are scolded for 'fascists' and 'racists'. The identification of Lysenko's opinions with the ideology of the Soviet state, 'dialectical materialism', could only be focused on two items. In the first place on 'the relation between the theory and the practice of production': Lysenkoism seemed more productive in the thirties than genetic science. In the second place there is a presumed 'interaction between the organism and its surroundings'. This interaction will receive 'the preference' of the authorities, because it promises more perspective to agriculture and breeding. And interaction is a decent dialectal category.

In 1936 the geneticists and the Lysenkoists met in a conference. The American geneticist Muller frontally attacked the ideas of Lysenko, and turned his arguments upside down. Lysenkoism would mean an implicit, logical basis for racism and fascism: if it is true that training, that is education and surroundings, changes heredity, then centuries of misery, suppression and deprivation must have made the less fortunate classes and races inferior to the well-to-do classes and races. Than the 'damned in hunger's sphere' stand helplessly and hopelessly against the aristocratic (super)mankind. A very sharp argument in Germany, in the United States or in general, but hardly in the Soviet Union of 1936: the hypothesis of Lysenko promised the Soviet population a shining future after a few generations of training and hard work.

At the finale of this subject it is appropriate to accentuate that the results of modern genetics make it possible to draw some political conclusion. The geneticist Dobzhansky, who left the Soviet Union, resumes this as follows: biology doesn't support any class, nation, race or party. The result is this: "the differences in hereditary abilities of human capacity are much bigger between individuals in one group than the differences in average hereditary capacities between groups"[12]. The conservation of hereditary abilities (genotype) – even after centuries of exploitation and colonialism – causes that, with changed social conditions, a complete human development can be the result. The political message of genetics is a fundamentally democratic one: a cold shower for nationalists, racists, colonialists or sexists.

The 'dialectical materialist' Lysenko-version of biology, known as 'agrobiology', had no scientific background whatsoever. It was an ideological digestion of a couple of a agricultural techniques. It was not a construction based on a healthy interaction between theory and practice, as some people have put forward; it was not a 'paradigm' that could maintain itself for some time next to Mendel's genetics. It was a delusion from the beginning, that blocked

[12] Dobzhansky, Mankind evolving, cit. Jorawsky, 264.

every debate. It could not become dominant because of its own merits, but only with the assistance of pressure and the submission of science to the state. The question is: why?

The answer must begin with an insight in the situation in the Soviet Union, the menace of a German attack and primarily the desperate struggle to heighten the productivity in agriculture.

3. Science and ideology in Soviet agriculture.

For centuries agriculture had been a traditional activity, that is transferred from generation to generation. The industrial revolution implied the genesis of big cities. The growth of the population imposed new requirements towards the traditional agriculture, constrained science to become involved. The discovery by Liebig of the significance of the chemical elements for the growth of the vegetation, the special role of the element nitrogen, caused agriculture to become a territory for the application of chemistry and a market for the chemical industry.

Genetics was in the first decennia of the twentieth century a big theoretical breakthrough in biology, but not a practical. Big expectations accompanied the practical use of genetics, but it would take a long time before the laws of Mendel could be applied to direct use in the agricultural practice. And in the Soviet Union the situation in the twenties was very special. The existence of extreme climatologic conditions required specific solutions in this vast country. The question was often raised whether the unique Russian conditions would not require a specific Russian science for its agriculture[13]. Lysenko was a shoot on that trunk, and not the trunk itself.

And second: in Russia existed an enormous gap between agricultural science and daily practice. Russian soil specialists, botanists and now the geneticists often had international stature. On the other hand stood a medieval agricultural practice, that was so little selective that traditional belief could expect the reaping of rye after the sowing of wheat. Also in this aspect, Lysenko was not original. This abnormal situation had risen by the enlightened tsarist rule, that tried to modernize the country without changing its social structure. Agricultural experiments in stations stood in the midst of pauperized farms. During the revolution of 1917 the farmers took the land of the stations and divided the fields. After the revolution the Bolsheviks were confronted with a nearly impossible burden. They started form the principle that research and science would be necessary for the construction of the socialist state. Jowarsky observes: in the first decennium the Bolsheviks didn't prescribe the law for the peasants. The conduct of Lenin played an important role. He stated that how averse the peasants might be, without their cooperation the construction of socialism would not be possible. The scientific autonomy, violated by tsarist rule, was restored, the agricultural institutes were founded anew, experimental stations were reopened, the breeding station of Mitsjoerin was taken over, etcetera. Prominent scientists like Vavilov, Tulaikov, and others, felt inspired by the defiance to science of the Soviet state. In 1922 the example of the United States was followed and a 'Department of Agriculture' was erected, which managed a lot of

[13] The historical sketch of biology of Regelmann is followed. Lysenko appeared here as a representative of an important current in Soviet biology.

research institutes. Vavilov, recommended by the scientific community, was head of this Department. Marcel Prenant writes: "In our countries newly nurtured plants are sought and studied on the restrained initiative of some particular persons. The Soviet government on the other hand has sent for a big number of expeditions, headed by Vavilov, to look for varieties and species of all sorts of plants in the whole world. They gathered more than 100.000 in a few years, that is more than ever was known before. This collection, that is perpetually enriched and admired by specialists in the whole world, is a subject of studies in the 'Institute for Botany'."[14] There is a passionate strive for the construction of an agriculture guided by science. The ideal of Vavilov was "the rational and planned use of the plant sources of the whole world, the realization of 'organic forms at wish' with the assistance of the new genetics, to bring about a biological synthesis that matches the chemical one." The expectations were always very high. Much too high. Revolutionary leaders were seduced to set goals like "the surpassing of West-European agriculture in a few years". Faith and hope in the impossible reigned. The new government and the scientists were convinced that the most progressive science was necessary to create the most progressive agricultural system of the world.

But in the meantime the gap between the science and the practice of agriculture grew deeper and deeper. Men like Tulaikow pointed out that the better seeds of the institutes would not be more productive if there stayed much weed, little dung and few tools. The agricultural economist Doiarenko was afraid for a backlash, already in the twenties, because the lack of results would eventually harvest deception. And indeed, in 1929 the tide changed for the agricultural science. The government decided to a collectivization, that was brutally forced upon the peasants. The rebellion of the well-to-do farmers, the kulaks, was crushed in blood. The Bolsheviks were now convinced that the agriculture of the collective farms would raise the backwardness of the Russian farmer in a relatively short time. Is the social 'being' not the basis for the social 'consciousness'? By a big scale reorganization of agriculture, by the implementation of new techniques and by the application of agricultural science a rapid progress in production and mentality múst be possible. The unrealistic expectations were criticized by agricultural economists like Chaianov and Doiarenko, who would belong to the first prisoners in the scientific field.

At the same time the attitude of the party and the government towards science had changed. The official point of return is the speech of Stalin (1929) about 'The agrarian question in the Soviet Union'. He connected the question of the progress of theory (science) with the task of the construction of socialism: "It is necessary that the theoretical work not only keeps pace with the practical work, but that it steps ahead and provides weapons for our practical workers in the struggle for the victory of socialism. It is well known that the theory, if it deserves that name, gives a new orientation to the workers, a clear perspective, certainty and belief in the victory of our cause." The compromise of Lenin was abandoned. Science came under the control of the party. When science was *real* science, it must be ahead of practice and must be subservient to practice. Subservient to Russian agriculture. In a meeting with agricultural economists in 1929 Stalin stressed that *the practical results are the touchstone for scientific*

[14] Marcel Prenant, *Biology and Marxism*, 58.

truth. And the practical results were alarming: spectacular decline instead of progress: disastrous harvests year after year, sabotage, etcetera. A change-over took place in the relationship between government (party) and agricultural science. The Five-year-plan (1928-1932) had been fulfilled by Soviet industry with the help of physics, chemistry, mechanics, mathematics, and so on. But this was not the case in agriculture, though the forced collectivization was meant to offer the best conditions for progress. Why was that? The kulaks could not be the reason: they had been swept from the earth. The answer must be that the agricultural science was no good!

The agricultural science was not ahead of Russian agriculture (as was realized in the twenties), *but it lacked behind hopelessly*. The practice of agriculture had changed revolutionary and needed a revolution in agricultural *science*. The question was raised: what is the use of 1.300 research institutes with 26.000 specialists? There was no discussion about the weighing out of the choices that a poor and underdeveloped country should make between the stimulation of agricultural techniques on the one hand and of agricultural science on the other. Modest aims were not in question in the Soviet Union of the thirties. It was everything or nothing. Either the Department of Vavilov with the biggest collection of varieties of the world was a good matter or his collection was a waste of money to bourgeois science. And the requirements to science rose with the month: within two years all seeds must be replaced by marked seeds, the harvest of potatoes must immediately be improved, and so on. "The modernization of a backward country seems to need irrational enthusiasm and perseverance, that hardly can be measured in useful and modest doses[15]." Stalin wrote in 1933: "When there is a passionate will, every aim can be reached, every obstacle can be overcome."

In this historical context the movement of peasant scholars imposed itself; in 1929 23.000 in number. They took part in the campaigns for collectivization and mechanization, pioneered with new techniques and the use of measuring apparatus, measured the influence of factors like cold, warmth, light, humidity and dryness. Lots of receipts for stimulators went around in their own periodicals. They were criticized by the scientific world: real progress would mean better seeds, artificial dung, diversification of harvests; no palliatives, please! But the answer of the new functionaries of agriculture was: the peasants could be right, risks must be taken to find accidental hits, "let us experiment and see who gets the best harvests.." One peasant-scholar with an academic education was T. D. Lysenko. His hits by chance meant a partial relief of the terrible loss of winter wheat and a new beginning of the breeding of potatoes in some parts of the Soviet Union. Where science failed, Lysenko succeeded. And the publicity around the successes, blown up out of all proportions to keep the mood, played a big role in the creation of the Lysenko Myth.

Now separate lines began to come together. If practice was decisive, a touchstone for the truth, than genetics had a disadvantage as compared to agrobiology. Then genetics must be unfit for the Russian conditions and Lysenko's results must be the starting point of a new biology. Lysenko helped avidly, joined Stalin and criticized the geneticists: "To get a certain result, you must precisely want that result: if you don't want the result, you don't get it."

[15] Jorawsky, op.cit, 305.

Indeed, no one could deny that Lysenko and his scholars had *wanted* to improve the harvests of winter wheat and potatoes, and had managed to do that. A pitiless attack of the agrobiologists on the geneticists began. It was also a class struggle, or at least a 'layer struggle' in the sense that many 'old' scientists (with a tradition before 1917) stood against a cadre of scholars that had grown in and after the revolution. The former found their origin in the well-to-do circles under tsarist rule, the latter came primarily from oppressed peasant families. And the criticisms of the latter did not restrain themselves to the reproach of the ivory tower. Not at all, the gap between science and practice, between privileged and poor, caused an urge for revenge. The Lysenkoists demanded the whole biological science for themselves. They marked the geneticists as wreckers, Trotskyites, racists, fascists, foreign agents. The terror mowed away a number of leading geneticists. Still genetics would only disappear from the surface of Mother Russia in 1948.

The geneticists could be cursed and damned because it lasts until 1948 before they could show their first practical results: they then managed to cause a bigger number of chromosomes in the nucleus which lead to better species of corn. Vavilov and his collaborators were world pioneers in this matter, but their work was smothered. The geneticists of the thirties exercised a *theoretical* discipline, that ran from success to success, but could not contribute to the practice of Russian agriculture. Lecourt speaks of a 'crisis in applicability' of genetics between 1920 and 1950. With the development of the molecular biology, biochemistry, and so on, the chemical structure of the chromosomes (DNA) could be unveiled in 1953 and very slowly a guided influence of hereditary abilities became feasible. The spectacular applications of today open a new debate on genetics, now about the pros and contras of the practical application! Russian genetics found itself for thirty years in a practical hole that they, with whatever passionate will, could not fill in. At the dawn of operational research, they were persecuted and their science eventually forbidden.

But it would be utterly false to attribute the victory of Lysenkoism to the force of the movement of peasant scholars. Because next to the motives of the Lysenkoist movement there were the decisive motives of parts of the Soviet state apparatus to create a new ideology. In the slogans of that time it is often accentuated that the new agriculture 'needed' a new science: 'the old agricultural science under capitalism had not been able to meet the requirements of the workers of the collective farms', 'a new theory is necessary on the foundation of the writings of Lenin and Stalin', and so on. Lecourt suggests a connection between these demands and the role that the state consents to Lysenkoism. The Lysenko Affair would then rise far above the person of Lysenko. The result of the struggle would in that case be fixed by the logical demands of a certain political line within the Soviet system.

The approach of the peasant question called into existence a new layer of technicians who were the embodiment of two of Stalin's slogans: 'technique decides all' and 'the cadres decide everything'. Lysenkoism played an important ideological and organizational role under the peasant-technicians. It based itself on Mitsjoerin, that is the centuries long practice of Russian farmers and breeders. It did a national appeal on their total devotion. In that way a *movement* of combative peasants appeared, that can best be compared with the zealous Stachanov workers in the industry. A direct connection could be laid between the surplus zest

of hundreds of thousands, the struggle for socialist construction and the opinions of Stalin. In this way an ideological cement was formed to link the peasant movement with the aims of the Soviet state. Lysenkoism after 1935 was no longer the expression of the thoughts of Lysenko, but grew a specific agricultural form of a state ideology. Every reflection about the Lysenko Affair that puts the personal curiosities of Lysenko or Stalin in the centre, misses the point. And does not understand what is going to happen in and after 1948 when the state ideology of the 'two sciences' was proclaimed.

As a conclusion of this subject I would like to make two remarks:

I would like to draw the attention to an aspect of the relation between the methods of Lysenko and genetics. The method of Lysenko and his followers is 'trial-and-error': try, and see if it succeeds. If not, try again, change some condition. Practice will learn. In the end in every developing field the 'naive experimenting method' gives way to the scientific method. One of the most disadvantageous consequences of the Lysenko Affair was twenty years of backwardness of research and education in a major science, essential for modern agricultural science. In a comparative study of the stagnation of organic chemistry in England and France and its rapid development in Germany one of the causes of the spectacular advancement of the German chemical industry appeared to be the full unfolding of scientific research that was hindered elsewhere[16]. We formulated some general conclusions of which one can be applied to the Lysenko Affair: "Most contemporary practical achievements are unthinkable without the pure and applied scientific research that preceded and founded them. Though 'trial-and-error', the trying that is not directed by scientific insight, has lead to important discoveries, the approach of practical problems on the basis of a scientific knowledge of the factors involved is much more fertile." This conclusion is in line with the final breakthrough of genetics in the Soviet Union in the sixties. It throws a spotlight on the discussions between peasant-scholars and scientists in the thirties. The former looked passionately for lucky hits, and they were right. But in the end Lysenko's road of chance and fantasy – without any scientific work to accompany him – lead to a dead end.

Second: in the sketched developments Stalin and the Lysenkoists take an extreme viewpoint in the matter of the progress of science. They proposed that there is a 'way' when and where there is a 'will'. This voluntarism is well known to the communist movement, it is also strongly connected to movements of liberation. But it opposes a materialist point of view. There is also the idea that the content of scientific progress can be destined by the social needs of the moment, the externalist view. It is untenable in the extreme form that it gets in the events described. Voluntarism and externalism appear to be two sides of the same medal[17].

4. <u>The two sciences (1948); tertium non datur</u>.

[16] Peter Kooiman and Leo Molenaar, *From artificial pigment to dung: The involvement of science in the German organic industry (1850-1918)*, Delft 1974.

[17] Many people hold the externalist view in the development of science for the Marxist view. The British Marxist J.D. Bernal wrote a concluding chapter in his *Science in History* (1965) in which he proposed a fruitful synthesis of the externalist and internalist point of view.

In August 1948 the notorious session of the Academy of Agricultural Sciences took place in Moscow. President Lysenko presented his Report, consented on forehand by Stalin, 'About the situation in the biological science'. He demonstrated the new biology that would make it possible to force the development of every animal and plant in the direction that mankind wished. He criticized not only genetics but also Darwin's 'struggle within the species'. The lack of scientific arguments and the overwhelming amount of political and ideological reasoning are striking in his speech: "Morganism belongs to the arsenal of contemporary imperialism, as a means to get a scientific foundation for its reactionary politics", "genetics judges that the theory of development is unattractive, because, if related to social phenomena, that would imply the fall of the bourgeoisie', "genetics is a weapon in the hands of Hitler's monstrous race theories", and so on. A number of geneticists exercised self criticism and went underground. And there were men like partisan leader Rapoport who stated "that changes of animals and plants cannot be caused by merely wanting it", and who snarled at political leaders like Zjdanov and Molotov: "Why in heaven's name do you think that you know more about genetics than I know?" Rapoport is thrown out of his institute and the communist party, only to be rehabilitated much later. The death sentence is pronounced over genetics. Between 1948 and 1964 a whole generation will not meet the name of Mendel in textbooks. Because of the shocking speed of the development of genetics in the fifties, the world shaking event of the unraveling of the genetic code, the quantity of the applications in medicine (prenatal health care, oncologic research), physiology, agriculture, etcetera, one can imagine the bewilderment of the whole scientific community and their sympathy for their truth loving Soviet colleagues.

But the August session didn't stop at this point, not in the least. The Academy distinguished between two biological sciences: a proletarian (Lysenko's agrobiology) one and a reactionary, capitalist one (genetics), and then took a gigantic step forward. The struggle between the two sciences was not restrained to biology, but it had a general, universal character, it existed in all natural sciences. The mission was to follow the example of biology, and to unmask the reactionary basis of ordinary chemistry, physics, mathematics, astronomy, and so on. The session took place in a very tense international climate. The United States had unchained the Cold War. In 1947 the political line of the 'two roads' had been exposed by Zjdanov: there was a road to darkness: it was the road of US-imperialism; and there was a road of light and peace: the road of the Soviet Union. A third road, a 'third way', cannot exist. The Soviet Union rejected everything from the USA and from the West, and praised everything from their own soil into heaven. Like in the thirties. The time was ripe for the ideology of the 'two sciences'.

Medvedev supposes that Lysenko profited from the international climate by gaining total victory, with Stalin giving him major support. There is no reason in my opinion to believe in this Rasputin-role of Lysenko. The thesis of Lecourt seems more probable. He found a major explanation in the internal situation in the Soviet Union, in which official organs of the state unveiled a fierce class struggle (twelve years after the abolishment of classes in 1936)! In the beginning of the fifties there is a heavy struggle within the state apparatus and the party between factions for power. Names like Beria, Molotov, Malenkov, could be called into

memory. Lecourt considers the 'two sciences' as an obligatory state ideology, forced upon a potentially oppositional layer: that of the new cadres in agriculture and industry. They got a hard and clear warning: either you belong to our camp or you belong to the other camp. There is no third camp. Any opposition will finally reach 'the end of ideology': the trials, prisons and gulags. In Lecourt's opinion Lysenko is not the active, leading figure, but a docile instrument of powerful forces far beyond him: "We saw that 'dialectical materialism' made itself *from outside* master of Lysenko's ideas (1935-1936), and now we see that the state intervened *from outside* to express the ideology of the 'two sciences'. (…) There is no drive within Lysenko's theory of practice, that points to the universal conclusions of '1948'." This point of view declares how this ideology can disappear in time, after its work is done. The ideology of the 'two sciences' finds it origin in certain state motives and has a very specific function in the whole of class relations within the Soviet Union. From August 1948 moreover, this ideology was forced upon all communist parties by the way of the newly erected Kominform (the successor of the Komintern). The old centralist custom was that every communist, everywhere, construction worker or biologist, was supposed to spread this ideology with eagerness. A complication was that leading Marxist scientists, as we have seen, in many communist parties were convinced of the scientific truth of genetics. A further complication was that for many parties and individual communists the background of the question was vague and unknown. Some parties assumed that some scientific progress was at stake. Hence the confusion and the sectarian debate everywhere.

Lecourt gives a saddening image of the discussion in the French communist party. After the war many intellectuals and scientists oriented themselves towards the communist parties. The resistance against fascism, the struggle against the threat of an atomic war, the striving for a better society with an honored role for science: it appealed to many intellectuals. On 25th and 26th of August 1948, the same August (!), a World Congress was held in Wroclaw (Breslau): 'Intellectuals and peace'. Its decision was that "the biggest possible spectra of intellectuals must be collected in a front for the defense of the mental heritage of the peoples". On the same 26th of August one of the biggest and most harmful ideological struggles broke loose in France, because of the Lysenko Affair, that ended with the complete isolation of the communists. That day Jean Champenoix wrote, on behalf of the PCF, in *Les Lettres Françaises*: "The two hostile and irreconcilable concepts, that collided in the seemingly specialized and restrained area of genetics, are the same that oppose in the whole modern world, in science, in philosophy, in economics, in politics: the opinion that causes people to slaughter each other on the battle fields and that sterilizes the richness of the earth and the human intelligence, and the opinion that wants to unite all citizens of the world. (…) Rudely spoken: the debates in Moscow mean the defeat of the ideas that formed the basis in questions of heredity, before and after Hitler, on behalf of all racist doctrines." It was the beginning of a bitter struggle. In the beginning of September the daggers were crossed in the leftist paper *Combat*, seven days in a row.

Maurice Daumas: "The Moscow debates bring us back to the time of Galilei. To the same method of intimidation to slander theories and individuals, the same one-sidedness, the same absolutism." Jacques Monod, later geneticist of world fame and winner of the Nobel Prize:

"The socialist thinking in the Soviet Union is in a lethal decline. (..) One cannot run away from this conclusion, however painful it may be for everyone who has put his hope on the construction of socialism in Russia." Charles Dumas (socialist): "It is a backlash to the Middle Ages: science must again be subservient to the doctrine of a political ideology." Many waited for the opinion of Marcel Prenant, partisan leader, member of the Central Committee of the PCF, biologist. He tried to reconcile: let the practice speak for itself, but, of course, in the end everything will be explainable within genetics. He is put aside by the PCF, must keep his mouth and is eventually forced to leave the party. A third camp does not exist!

And the PCF of course threw oil on the fire: "The biology of Lysenko is the greatest achievement of the new scientific era: the criticism of classical genetics is the first shock of an earthquake through the whole scientific establishment." Dessanti added that science is a productive force, and the productive forces are a factor in the development of the class struggle. Thus it is logical that every science is a matter of class struggle: especially in its content, its concepts and its theories. The leading intellectual of the party, writer Louis Aragon, ended the discussion with a quasi-religious confession[18]: "Without speaking in favor of one of the two, even a layman can notice that the first direction (genetics) implies a declaration of powerlessness towards the changing of the development of the species, and that the second direction (Lysenko) offers the perspective of the capacity of men to change the development of species and to guide heredity. For someone who doesn't know dialectical materialism, who is no Marxist, there are less obstacles to *choose* for the first direction than for a Marxist, who doesn't restrain himself to explain the world but who wants to change the world, and not only in biology but in every field."

Today everyone who contributes to the struggle against nuclear armament and proliferation can imagine how wrecking this hateful debate has been for the cooperation between progressive people. When reading the French debates my reaction is: never more! In the end the French communists were not in charge of the situation, they were puppets in a play that went far beyond their imagination. Though they always played their second part fanatically.

In the Netherlands there was a heated debate on a small scale, but the reflection in the theoretical papers of the Communist Party is very restrained. In 1949 only one page in the theoretical monthly *Politiek & Cultuur* was filled by youngster Ger Harmsen who followed Louis Aragon. The harvest consists of some articles about Mitsjoerin, Lysenko or Lepeshinskaja. In 1966 a retrospective opinion was published by the Bulgarian Polikarov, who criticized the affair[19]. An important witness of the real Dutch debate can be found in *De Vrije Katheder*, the resistance paper of artists and intellectuals that tried to maintain the coalition of progressive people after the war. In December 1948 an opinion appeared of the biologist A.F. Willebrands, who put many arguments in a row and drew an inevitable conclusion: "The merits that Lysenko undoubtedly must have had, cannot hide his shortcomings. The hope must be put forward that these shortcomings will soon be discovered in the Soviet Union." It is surprising that Willebrands knew the work of Lysenko quite well, and that he could evaluate and criticize agrobiology in the framework of genetics. In the next

[18] Louis Aragon, *About the free discussion of ideas*, Kwartaal, 6, 1949.
[19] A. Polikarov, *Philosophical aspects of modern physics*, Politiek & Cultuur, 4, 1966.

edition of the periodical the communist answer was put forward by Ger Harmsen, who used merely political and ideological arguments for his communist confession against genetics. The editors promised further discussion, which was not the case. One of the well known natural scientists from Dutch soil, the mathematician Dirk Jan Struik, entered into the debate in the United States, and he tried, like Marcel Prenant before him, at first to reconcile[20]. The Englishman John Haldane, also an icon of the progressive movement, resolutely declined the opinions of Lysenko[21]. In general Marxist scientists chose, sometimes after some hesitation, for their scientific convictions. In many cases this was accompanied by expulsions and ruptures within the leftist movement. The communists, who already were besieged by the policy of the Cold War, isolated themselves from their natural allies by their sectarian behavior.

We should ask therefore this question: in how far was the ideology of the 'two sciences' really primarily meant for internal purposes in the Soviet Union (hypothesis Lecourt)? The use abroad, in every part of the world, has had very serious consequences, that in the least could have been foreseen. One of these consequences was that the imperialist subjugation of the capitalist states by the United States was again accompanied by the ideological subjugation of the communist parties to the Communist Party of the Soviet Union (CPSU). In post war Europe, where big communist parties had experienced new coalitions, ideas and orientations in the national struggle against fascism, the hegemony of Moscow was restored with big force. The Lysenko Affair and the 'two sciences' played an important role in the restoration of the discipline within the communist movement. That was not by chance, it was aimed at.

In retrospective the slogan of the 'two sciences' was not new. In the labor movement it was quite usual to speak of 'two kinds of science', and then a distinction was often made between the 'so-called' cultural sciences (mainly ideological) and the natural sciences (mainly real). Though this approach is highly challengeable, the context is quite another one. It would be preferable to speak with Marx about one science that has the task of "bringing back the visual, apparent movement to the proper real movement", or with Einstein "to unite the observable phenomena as deeply as possible by means of systematical thinking"[22]. Work that can be brought in this description of Marx, "it did not matter (…) if this or that thesis was true, but if that thesis was useful or harmful to Capital. Was it suitable or inconvenient, permitted or not. Instead of disinterested research came the paid bragging, impartial scientific research gave way to bad conscience" etcetera, doesn't need to be ornamented with the term 'science'[23].

By the way, Marx observed that scientific research as such is disinterested! The ideology of the 'two sciences' had nothing to do with Marx or Marxism. This observation has been made earlier about Lysenko's criticism of genetics, or about his opinions about the relation between

[20] Dirk J. Struik vs Charles H. Blake, *Communism and genetics*, The Tech Engineering News, April 1951.
[21] J.B.S. Haldane, *In defense of genetics*, The Modern Quarterly, 4, 1949. In the same periodical a reconciling position of J.D. Bernal.
[22] K. Marx, *The Capital*, Volume III; A. Einstein, *Out of my later years*, New York 1950, p. 24.
[23] K. Marx, *The Capital*, Volume I, 1867. Prologue second edition, 1873.

theory and practice. It is now necessary to focus on the Soviet version of 'dialectical materialism', the state ideology of Stalin, and its relation, if any, to Marxism.

5. The 'dialectical materialism of Stalin and the Lysenko Affair.

One of the main theses of Lecourt is that Lysenko's agrobiology must be considered as an application of Stalin's 'dialectical materialism' on the subject of agricultural science. Indeed, the ideas of Stalin in 'Historical and dialectical materialism' (Chapter 4 of the 'History of the CPSU'), his view on the relation between theory and practice, Lysenko's agrobiology and the ideology of the 'two sciences' form a logically consistent system. And as Stalin appeals to certain interpretations of the thoughts of Marx, Engels and Lenin, this raises some fundamental questions that I can only mention superficially. I want to treat five fundamental traits of Stalin's 'dialectical materialism': the relation of dialectics to nature (a), the dominant role of the productive forces in the building of socialism (b), the application of dialectics to the agricultural science, the relation between theory and practice (d) and the relation between materialist dialectics and science (e). As will be shown Stalin's 'dialectical materialism' is neither dialectic nor materialist: it violates the nucleus of all Marxist thought.

a. Dialectics and nature.

Marx and Engels borrowed from the German philosopher Hegel a couple of idealistic dialectical laws, that they reformulated and used in a materialist way. Marx wrote 'The Capital' as a living proof of the fertility of a consciously handled materialist dialectics in the science of political economy. From that moment the discussion was ignited about the place of these dialectical 'laws' in relation to the substance they describe. Are these 'laws' dogma's, a priori reasoning, that nature has to comply to? Or is it a question of looking and resuming to certain questions, that openly excludes preconceived constructions? Engels wrote a long polemic essay about this subject, that grew known as the *Anti-Dühring*. The author of that name reproached Marx to use preconceived constructions, dialectic crooked paths, philosophical prejudices, dialectic miracles for the believers in The Capital. Engels tried to prove (Volume 1, chapter 12) that Marx used dialectics and formulated certain laws, but only *after* he had presented the scientific data in a convincing and logically consistent way. Dialectics is not a confession of faith: it comes forward in the study and the presentation of the phenomena itself and does not take the place of the tangible research. And though a lot of ambiguities can be observed, one could propose that prominent Marxist scholars had looked to dialectics in this way.

In the thinking of Stalin this way of looking to materialist dialectics is completely put upside down. For him there are iron laws, to which the universe, society or science have to obey. The laws of dialectics are a priori, they 'judge' and prescribe… Than a curious discovery can be made. If the world is governed by laws, once and for all, than this way of thinking approaches a 'purposeful' view of the world, a 'religion': a form of 'objective idealism' as the philosophical jargon tells. Than Stalin's so-called 'materialism' is a form of 'idealism'. The turning round (Stalin) of the turning round (Marx) of Hegel's idealistic dialectics leaves no

other conclusion. Has this turning around been achieved, than the following situation arises: this or that dialectic law *judges* that a certain process, a development, must go in this way. If we have a tangible development, than it will take place like this and not otherwise. I have read some publications from the thirties and forties looking for a conscious admittance of this procedure. And I found a very consistent piece of the Swede Zennström about the philosophy of Stalin[24]. He stated the following: "In the work of Stalin not a trace is left of the known Hegelian triple, that divides a process of development in thesis, antithesis and synthesis. Marx had taken over the terminology of Hegel, partially; for him the laws of dialectics didn't rule nature and society, but he derived the dialectical laws from the research of nature and society. When the dialectical process could base itself on nature and society (in the Soviet Union, that is..) a different formulation was needed than that of Hegel. Stalin developed the dialectical method with its substantial content." It is clearly formulated here. Stalin turned Marxist dialectics upside down. He started from dialectical laws that govern nature and society a priori. A philosophical revision that lead to an idealistic system, to faith in ideology.

b. <u>The prevailing role of the productive forces</u>.

The dominant role of the productive forces is a central conception in the thinking of Stalin. He made a direct connection with Marx' *Prologue* of *A criticism of political economy*, one of the spots where Marx describes his materialist view on history. Two famous passages would become a guideline for Stalin, and they deserve closer examination. They are: "On a certain stage of development the material forces of production of society come into conflict with the given relations of production. (…) An era of socialist revolutions begins. With the change of the economic basis the gigantic superstructure undergoes, more or less rapid, a radical change…", and, "mankind always posits itself tasks, that she can solve, because at closer look one will discover that such a task arises only there where the material conditions for its solution already are present, or are coming into existence." The last passage can be understood as 'voluntarism' in the sense that "a passionate will can overcome any obstacle". The quote of Marx sounds very abstract, is borrowed from Hegel's dialectical pair of conceptions: 'Schranke' (limit) and 'sollen' (must). Hegel explained that when something must (soll) be, than it is and it is yet not. But with the mental distinction of this limit (Schranke), it is already behind you[25]. It is a very 'philosophical' sentence, that has been misunderstood. The first quote is even more important. Lecourt observes that in *The Communist Manifesto* the class struggle is the motor of human history, while in this *Prologue* Marx restrains himself to the 'production forces' as the driving force. Of course, people, their capacities and knowledge, take part in this conception of 'production forces'. But Stalin reads in this passage that the 'productive forces' are the drive of the development of society, and that the production instruments, the working tools (Arbeitsmittel), are the most revolutionary element. A lengthy quote from his *History of the CPSU*: "The second peculiarity of production is that the changes and development always begin with the changes and the development of the production forces, in the first place with the change of the production tools. The productive forces are the most mobile and the most revolutionary element of the

[24] P.O. Zennström, *The philosophy of Stalin*, Kwartaal 9, 1949.
[25] G.W.F. Hegel, *Wissenschaft der Logik*, reprint 1972, Volume 1, p. 142.

production. At first the productive forces of society change, and after that, dependent on these changes and in accordance with them, change the relations of production." As a logical consequence the development of technical artifacts, the tools of labor (and the connected science) must play absolutely the principal part in the construction of socialism. A point of view that cannot be detached from the situation in the Soviet Union in the twenties and thirties, of course. A queue of quotes could be chosen to make clear that for Stalin a change of people's minds and opinions about society could only arise *after* the change of the economical basis of the society. Then a vicious circle seems to come up: how can changes in the economical basis ever get a socialist character? With the collectivization of agriculture this was not a question: it was brutally forced upon the peasants.

Stalin's mechanical thinking, in which 'interaction' had been replaced by 'one-track-traffic', has had worldwide influences. His philosophically founded absolute priority for the development of the productive forces, techniques, planning, in the construction of socialism, gave communism an 'economist' outlook. It is a way of thinking you can still hear when women strive for their rights in society and within communist parties: 'you should first fight together, man and women, for socialism, and after that feminism can be fruitful'. It is a big merit that the feminists in our party have discovered the 'economist' character of this point of view, and that they have overcome it.

c. <u>The application of 'dialectical materialism' in agrobiology</u>.

The exposition attributed to Stalin in the *History of the CPSU* begins with the following sentences: "Dialectical materialism is the worldview of the Marxist-Leninist party. (…) Historical materialism is the expansion of the theses of dialectical materialism to the phenomena of life in society, the study of society and the study of the history of society.[26]" The iron laws of 'dialectical materialism' of Stalin deliver indeed by simple derivation the central theses of Lysenko's agrobiology. Which can't surprise, because that was the work of the former geneticist and new party philosopher Prezent in 1936.

Stalin formulates the 'law' of universal interaction thus: "Therefore the dialectical method intends that one cannot understand a single phenomenon in nature when it is taken isolated, out of the context of the surrounding phenomena; because every arbitrary phenomenon on every arbitrary domain of nature can be made senseless if it is considered out of its connection with the surrounding conditions." This makes clear that Lysenko makes the interaction with the surrounding, and the conditions of the environment, the principal actor in his definition of heredity. Isolation of heredity in 'genes' is senseless. Moreover, when the dialectical method "requires that phenomena (…) must be considered from the viewpoint of their movement, change, development, rise and decline…", then there is the objection from Lysenko towards Mendel and De Vries that in their conception of hereditary factors "nothing ever changes". And when the dialectical method "judges that a process of development (…) should be considered as a progressing movement, a movement in an upward line.. from lower to higher", than one could imagine, in line with Lysenko, that individuals within the species would and could sacrifice themselves to the welfare of their species. But then there is no

[26] J.W. Stalin, *History of the CPSU*, chapter 4, *Historical and dialectic materialism.*

distinction with other religious and teleological biological theories! 'Dialectical materialism' turns openly out to be a system based on belief.

Lysenko didn't make fun of party philosophy, but 'dialectical materialism' placed Lysenko's technical practices on a philosophical pedestal.

d. The relation between theory and practice.

The meeting of 1929 with the agricultural economists, in which Stalin proclaimed that only practical results were the touchstone for scientific truth, was a fundamental change of the way Marxists thought about this matter. From now on theory had to give power to practice, and in reverse the power of practice was the potential nucleus of a theory. In the case of Lysenko an effective technique was provided of an incoherent ideology that was greeted as 'science'. It is all about the idea that practical insights and results will generate theoretical knowledge. A philosophical current, pragmatism, adds: the criterion for the correctness of a theory is whether it gives results in practice, "what works, is true". Practice is both the starting point and the justification of this philosophy.

This conception appears to play a big role in the Lysenko Affair. In general terms it means that (political) ideology will let itself guide by the experiences of the moment, by practice, without theoretical foundation. This is a background of the many inexplicable changes of the course, without discussion, the sudden adjustments of the opinions in the light of a (new) practice, that were typical in the political practice of Stalin. In the Lysenko Affair the communist parties outside the Soviet Union had to do away, in 1948, with the convictions and ideas of the thirties. Without any theoretical reflection, without debate or criticism, without synthesis. That was the usual practice, more the rule than the exception.

When compared with the exposition of Lenin in *The leftist current* about the judgment of mistakes in (political) theory, the change is striking: "The attitude of a political party as regards her mistakes is one of the most important and surest indications for the serious character of the party. To acknowledge a mistake openly, to lay bare the causes, to analyze the situation that has roused it and to consider attentively how to make the mistake undone; that is the characteristic of a serious party…" This idea of the huge importance of the 'mistake' in political theory reminds of the discussion about falsification in science theory. Stalin did not bother about such trivialities, opened the road to blind practicing and the political line of the moment.

e. 'Dialectical materialism' and science.

The relation 'dialectical materialism' and science, in Stalin's view, can be resumed now. *If* the laws of dialectics are the proper laws of nature, *than* every science is the application of these laws on a particular domain. Then all sciences must be laid under the 'sieve' of 'dialectical materialism' to smooth roughness and to correct mistakes. If a certain science, like genetics, resists such a sift, than this false science has to be reconstructed on the basis of the dialectical laws. The new 'scientific' terms and laws of that domain can simply be derived, with some skill, from the philosophical system of categories of 'dialectical materialism'. In this opinion

‘dialectical materialism’ is ‘science of sciences’. And if the communist party is the carrier of ‘dialectical materialism’, and represents as such ‘the ideas of the working class’, than this leads inevitably to the ‘two sciences’, the ‘proletarian’ (on the sieve) and the ‘reactionary’ (through the sieve). ‘Dialectical materialism’ is a closed system, guarded by power, immune for every criticism from within or from outside. It has been just that: for decades.

It cannot be the objective in this article to give a positive formulation of materialist dialectics as opposed to its Byzantine degeneration. Perhaps one quote of Marx from the already cited *Prologue* that gives an adequate characteristic of his ‘dialectics’: “In her mystical form dialectics grew a German (add: Russian) fashion, because it seemed to glorify the existing. In her rational shape dialectics is (…) an annoyance and an atrocity, because it encloses with the positive understanding of the existing the understanding of its negation, of its necessary decline, because it considers every form in its development and its transiency, because it can’t be bluffed, and because its nature is critical and revolutionary…”

6. Some final remarks on behalf of the communist party.

The Lysenko Affair has not been exhausted by my annotations. There are many aspects that deserve more attention or better treatment. Some remarks I already made, but are again stressed now. It was indeed about the relationship of the communist party, materialist dialectics and (natural) science. In the thought of Stalin the relationships are simple. The Party is the carrier of ‘dialectical materialism’, the highest philosophy, ‘science of sciences’. What is there for Dutch communists in this story?

I want to make some remarks about these relationships: between science and materialist dialectics (a), between the party and materialist dialectics (b) and between the party and science (c).

a. About science and materialist dialectics.

In the preceding pages *everything* appeared to be ‘dialectical materialism’. Whether the opinions of Darwin, Mendel, Stalin, Lysenko: there was always a time when this label was pasted on an opinion (eventually to be removed). And because that label covered everything, in the end it embraced *nothing*. The mysticism of this ‘dialectics’, that glorified the existing power and always was right, has caused many scientists to loathe this way of thinking. The French geneticist Monod, winner of the Nobel Prize, wrote in a *Prologue* of the French translation of Medvedew’s book on Lysenko that ‘dialectical materialism’ was a kind of animism, a mockery of science. That has grown the current opinion under scientists, socialists and even communists. Still the Lysenko Affair doesn’t spontaneously lead to such a conclusion. Stalin’s ‘dialectical materialism’ was a mysticism, glorifying his reign, that had not so much to do with the original dialectics of the founders of communism and socialism. One could of course trace how it was possible that such a degeneration took place. Because Stalin broke himself loose of former opinions, but for many people, among them quite a few intellectuals, his writings stayed within the continuity of Marxist thought. My own position is that I would defend materialist dialectics in such a debate.

About the relation between materialist dialectics and science: it is useful and common to interpret and propagate dialectics as new results of science *afterwards*, as did the books of Prenant and Kastein, but it would be more creative to use dialectics consciously as a method of thinking prior to the elaboration of experiences and data, prior to the making of suppositions.

b. About the communist party and materialist dialectics.

In the Lysenko Affair the communist party came forward as the carrier of 'dialectical materialism'. The party however cannot be a 'carrier' of such a philosophy. For at least two good reasons. The first is that materialism and dialectics, the world view and the method of thinking, are in the possession of everyone; they are a part of our cultural heritage, not exclusively destined for communists. The second reason is that one cannot expect that communists would be the carriers of a specific way of thinking. Communists unite on a political world view, that is made explicit in a political program and the according practice. So on the one hand the support for materialist dialectics is broader, on the other hand smaller.

My idea would be that the party has to make more 'work' of materialist dialectics by bringing it into debate. That would be a big progress as compared to the present situation with only some organized attention when individuals take initiatives for lectures or history lessons. Perhaps there is a trauma at hand when 'dialectical materialism' is at stake, not only because of the Lysenko Affair. A discussion about the subject would be a condition for a critical reevaluation.

c. About the communist party and science.

In the Lysenko Affair a communist party in power behaved itself as an oracle for the people that work in scientific professions. This idea goes back to the term 'scientific socialism', with which Marx and Engels characterized their theory as opposed to the 'utopian socialism' of some predecessors. One can indeed express with this term that the new socialism tried to found itself on the basis of the results of scientific research (like Marx in *The Capital*). But the identification that is implied between 'socialism' (parties, and so on) and 'science' has proved self deceiving. A communist party is not at all 'scientific', even when it wants to use proper scientific arguments in economy or sociology for its daily work.

In our party there is a widespread consciousness that the content of scientific work is not an instrument of party politics, is as such dispassionate and impartial. On the other hand this vision should not result in the idea of an 'autonomous' science, that we best should keep at distance. Because the speed and the degree of scientific development require a planning of society with a debate in society, parties and parliament about priorities in scientific development. For a (communist) party abstinence is not an option, but participation in this debate with an own contribution and an own scientific institute. And there is the need for 'theoretical struggle' (a term of Engels). In genetics there is much debate, it is a real arena of opinions and controversy. Not only about DNA, and how to handle experiments in agriculture on open fields. But also because rightist groups come forward with new race theories that misuse (again) results of genetics. A (communist) party must play a role to stimulate debates,

to develop a political stand and to propagate its own progressive vision on the basis of scientific results[27].

[27] This article (from 1981) was commented by Wiebe Bijker, Luuk van Duijn, Eduard Glas, Henk de Haan and Rieme Wouters. It played some role in the discussion about a new party program (the former was from 1952) in the Communist Party of the Netherlands (CPN). I was a member of the Party Board (70 people) since 1980, became a member of the Commission for the Party Program (1982-1984), later (1984) a member of the *Executive Committee* responsible for Peace Actions and the cooperation with other leftist groups, and grew editor in chief of the party monthly *Politek & Cultuur* (1987). In 1989 four parties (radicals, pacifists, communists and some Christians) went together to form a parliamentary fraction that eventually became a new party (1991, GreenLeft, *GroenLinks*). In the party program Marxism was named as an inspirational source for Dutch communists, and the obligatory mentioning of 'marxism-leninism' or 'dictatorship of the proletariat' was abolished. The new program made the close cooperation, and eventually the fusion, of the CPN with other parties.