

ИССЛЕДОВАНИЯ

Against the Lysenkoites' Hegemony: On the Establishment of the Institute of Cytology and Genetics at the Siberian Branch of the USSR Academy of Sciences¹

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Most striking in the history of Soviet science is, no doubt, the dominance of a pseudoscience, Lysenkoism. The downfall of Trofim Lysenko (1898–1976) and the normalization of biological sciences was, without any doubt, a fruit of De-Stalinization conducted by the then leading scientists, who began immediately after the unexpected death of the dictator, Iosif Stalin (1878–1953), who had supported Lysenko. Since their victory at the notorious “August Session” of VASKhNIL, the Lysenkoists had maintained their dominance over the biological sciences until 1965, one year after the downfall of their patron Nikita Khrushchev (1894–1971). Khrushchev was faced with the crisis in Soviet agriculture and had come to expect much from Lysenkoite agronomy which had provided a variety of “cheap methods” to raise productivity in agriculture. He made his support for Trofim Lysenko (1898–1976) clear in 1957. Nevertheless, that same year the Institute for Cytology and Genetics of Siberian Branch of the USSR Academy of Sciences was established with Nikolai Dubinin (1907–1998), one of the main figures in the

¹ This article is a revised and expanded version of the author's former paper written in Japanese: Ichikawa Hiroshi, “Ruisenko Haken ni Kôshite: Sorenpô Kagaku Akademî Siberia Sibû Saibô-gaku=Idengaku Kenkyûjo no Setsuritsu wo megutte” [Against Lysenkoites' Hegemony: On the Establishment of the Institute of Cytology and Genetics of the Siberian Branch of the USSR Academy of Sciences], *Bunmei-kagaku Kenkyû* (*Studies in Cultural Studies: the Memoir of Graduate School of Integrated Arts and Sciences, Hiroshima University*), 2012, vol. 7, p. 1–13. Some sources for this paper were already utilized in the paper by Hiroshi Ichikawa, “Obninsk, 1955: The World's First Nuclear Power Plant and ‘The Atomic Diplomacy’ by Soviet Scientists”, Japan History of Science Society, *Historia Scientiarum*. *Historia Scientiarum*, 2006, vol. 26, no. 1 (August), p. 25–41.

Research for this paper has been partly supported by the grant-in-aid from Japan Society for the Promotion of Science (JSPS) [Basic Research: type B. Project no. 22500858] for 2010–2012 fiscal years, “‘General Staff of Science’: A Comprehensive Study of Russian/ Soviet/ Russian Academy of Sciences” (research representative — Ichikawa, Hiroshi) and the grant-in-aid from JSPS [Basic Research: type B. Project No. 16H03092] for 2016–2019 fiscal years, “History of Radiation Effects Research and Protection Standards” (research representative — Kakihara, Yasushi).

opposition against Lysenkoites, as director. We explore why it was possible for “Dubinin’s Institute” to be established during the period of the Lysenkoites’ hegemony and the establishment of the “Dubinin’s Institute” possible?

We must also consider difficulties that genetics, or more widely biology, was experiencing due to the rise new molecular disciplines. These were becoming crucial topic in the Academy’s Presidium meetings, due to new research on the effects of radiation on living bodies in the second half of the 1950s during the intensification of the nuclear arms race between the United States and the Soviet Union.

Keywords: Lysenkoism, the Cold War, radiation study, genetics, molecular biology, Soviet scientists, the USSR Academy of Sciences, the Institute for Cytology and Genetics.

Introduction

Nikita Khrushchev (1894–1971), First Secretary of the Central Committee of the Communist Party of USSR and Primer of USSR, who faced with the crisis in Soviet agriculture, came to expect much from Lysenkoite agronomy which had provided a variety of “cheap methods” to raise the productivity in agriculture. He made his support for Trofim Lysenko (1898–1976) clear in 1957 and condemned Nikolai Dubinin (1907–1998), the main figure in the opposition against Lysenkoites, at a general assembly of the Party’s Central Committee on July 29th 1959 (Soyfer, 2002, p. 860). Nevertheless, the Institute for Cytology and Genetics of Siberian Branch of the USSR Academy of Sciences with Dubinin as the head was established in 1957, when Lysenko obtained the support from the top political authorities again. In addition, that institute had a large body of members even at the initial stage and continued to expand in scale in spite of interferences from Lysenkoites. Eventually, as Paul Josephson, Eduard Kolchinsky, Mikhail Konashev and Sergei Shalimov described in detail, that institute played the main role for rescue, rehabilitation and development of genetics in Soviet Union (Josephson, 1997; Kolchinsky, Konashev, 2003; Shalimov, 2011, Shalimov, 2013)².

Why was the coincidence of Lysenkoites’ hegemony and the establishment of the “Dubinin’s Institute” possible? Valerii Soyfer (2002, p. 848) refers to “some complexity of Khrushchev Era” in search for the reason why such a coincidence became possible. Although the control of the political power over science was still accepted in those days, Soviet scientists believed in the irreversibility to Stalinist Era and took diverse directions.

Slava Gerovich, having attracted worldwide attention by his fresh approach to the flourishing of cybernetics in the Soviet Union in the 1960s as a sort of social reform movement led by scientists, takes notice of the role of a mathematician, Aleksei Liapunov (1911–1973), who invited biologists including Dubinin to a private circle for the sake of his two daughters with ambition to specialize in biology. Thus by and by Liapunov became convinced of the indispensability of the normalization of Soviet biology, i. e. breaking down the Lysenkoites’ hegemony, as the most important problem for Soviet science and took an action for this purpose. One of the fruits of his activities was the so-called “letter of three hundreds”, which appealed with the signatures of 297 scientists to the Presidium of Party’s Central Committee for the normalization of biology (Aleksandrov, Lebedev, 1989; Gerovitch, 2002, p. 183–184)³. Gerovitch believes

² See also the site of this Institute, <http://www.bionet.nsc.ru>

³ The original text of the “letter of three hundreds” was first printed in newspaper «Pravda» (In Presidium ..., 1989). It can also be seen in: Kiselev A.F., Shchagin E.M. (eds.) (1996, p. 458–460). Otherwise,

that such a “social movement”, attended by a wide range of scientists for the normalization of biology as an undercurrent, prepared the positive conversion of situation in biology, such as the establishment of a new research institute with Dubinin as its Director and so on.

However, we must consider that the Institute for Cytology and Genetics of the Siberian Branch of Soviet Academy of Sciences was established by the Academy of Sciences as an official organization with a high level of autonomy. The Institute’s administration and activities were managed by the Academy’s Siberian Branch relatively independent from the Academy’s headquarter in Moscow. We must take into account this institutional aspect. In this paper the author sheds light on the enigma of the coincidence of the restored Lysenkoites’ hegemony and the establishment of the “Dubinin’s Institute,” by examining the minutes and stenographic notes of the Academy’s Presidium in Moscow and the records and documents of the Academy’s Siberian Branch in Novosibirsk.

We must also take into consideration that genetics, or more widely biology, which was then facing difficulties with the rise of molecular genetics and biology, could not help becoming a crucial topic in the arguments in the meetings of the Academy’s Presidium, as the research of radiation effects on living bodies became more and more important in the second half of the 1950s in accordance with the intensification of the nuclear arms race between the United States and the Soviet Union. First, we examine the importance of radiation study at the time first. We then examine the arguments of the prominent scientists within the Academy’s organizations and the interference from the Lysenkoites and their consequences.

I. Research on the Radiation Effects on Living Bodies

The Soviet Union succeeded in a series of nuclear weapon development in a very short time, since the success in the explosion test of the first Soviet atomic bomb, RDS-1 on August 29, 1949, to the success of the first thermonuclear bomb, RDS-6 on August 12, 1953. Whereas the Soviet Union was engaged in producing and storing many nuclear weapons in reaction to the U.S. nuclear weapons programs, on the other hand, they conducted a campaign for “the peaceful use of atomic energy” with an anti-American propaganda, so as to appeal to domestic and overseas public sentiment⁴. Along such a policy line, the Soviet Academy of

Paul Josephson refers also to the important role of the direct tie between some anti-Lysenko biologists like Nikolai Timofeef-Ressovskii (1900–1981) and the leading physicists like Igor’ Tamm (1895–1971; a Nobel Laureate in physics at 1958) (Josephson, 1997, p. 87–90). Then, Soyfer suggests the relationship between the scientists’ call for “normalization of biology” and the importance of the study on “radiation effects on living body” (Soyfer, 2002, p. 864–867). However, his view is apt to be concentrated in personalities of some leading scientists and to lose the organizational context from the sight.

⁴As early as November 10 of 1949, the USSR representative to the United Nations, Andrei Vyshinskii (1883–1954), referred to the non-military use of atomic energy for the first time in the international arena of the Fourth General Assembly of the United Nations (Vovulenko, 1950). Furthermore, on October 5, 1952, a year and two months earlier than the “Atoms for Peace” address was made by US President Dwight Eisenhower (1890–1969), a Politburo member, Georgii Malenkov (1902–1988), spoke highly of the peaceful use of atomic energy at the first day of the meeting of the Nineteenth Convention of the All-Union Communist Party (Bol’sheviki) (Malenkov, 1952). After this Convention, brilliant future of atomic energy became one of the main targets of propaganda in the Soviet press. An article titled “Atomic Energy for Peaceful Purposes” appeared in the most influential scientific enlightening journals, *Znanie — sila (Knowledge is Power)* by a chemist, A. Seregin (1953, p. 27–28). On May of the following

Sciences held a large-scale scientific session, Session on the Peaceful Use of Atomic Energy on July 1–5, 1955, the achievements of which were published in five volume proceedings (Akademii Nauk SSSR, 1955).

What is noteworthy here is that one of the sections was dedicated to biological sciences and a number of new findings were reported during the session. The section's organizer Leon Orbeli (1882–1958), a leading physiologist, emphasized in his presentation the importance of research on biological effects of radiation in the nuclear era, saying: "No matter whether research and utilization of atomic energy is carried out for peaceful or other purposes, this energy has some effects on the human being and any living body" (Orbeli, 1955, p. 3).

Subsequently to this Session, the First United Nations International Conference on the Peaceful Uses of Atomic Energy was held in Geneva August 8–20, 1955. The Soviet government dispatched a large-scale delegation to that Conference. Obtaining some admiration of the participants for their success with the world's first nuclear power plant at Obninsk near to Moscow which began operations on June 27 of the previous year, they, however, became aware of their backwardness in this field. The Conference made them realize that their achievements were "made by the 'landing' groups, i.e. very small groups of very qualified scientists"⁵ and their research fell far behind the "big science" in the United States and the United Kingdom in its scale⁶. On June 15 and 22 of the following year, the Presidium deliberated on and adopted a large, comprehensive plan of its Department of Physical and Mathematical Sciences in the field of nuclear research for the following five years and, as a part of series of the measures for that, decided to establish a laboratory for radiation genetics in the Institute for Biophysics⁷.

The Bikini incident made the effects of radiation on living bodies a central issue of international politics (Nakagawa, 2011). Nevertheless, the Soviet Union was late and unprepared in this field. In the first place, the Soviet Union lacked of the material conditions for utilizing radioactive isotopes for such research. When the Presidium of the Academy held a meeting on November 29, 1957, Chief Scientific Secretary of the Presidium of the Academy of Sciences, Aleksandr Topchiev (1907–1962), read his report on his attendance at the UNESCO (the United Nations Educational Scientific and Cultural Organization)'s International Conference on Radio-isotopes in Scientific Research held in Paris on September 9–20. In it he complained:

Radiometric apparatuses, dosimeters, and other electronic physical apparatuses made in our homeland do not meet the necessary level in their variety, quality and, very often, technical performance for scientific research treating with isotopes and nuclear radiation. Due to the lack of protec-

year, one of the journal of Komsomol (Communist Youth League), *Tekhnika Molodezhi (Technology for Young Persons)*, carried an article, "Nuclear Reactors" by a famous scientific writer-popularizer, Kirill Gladkov (1954). As for the reality of the initial Soviet nuclear development for the peaceful purpose, see Hiroshi Ichikawa (2016).

⁵The remark in a meeting of the Presidium of the Soviet Academy of Sciences by a metallurgist, Aleksandr Samarin (1902–1970).

⁶Arkhiv Rossiskoi Akademii Nauk (The Archive of Russian Academy of Sciences (hereafter ARAN). F. 2. Op. 6. No. 201. L. 138–140. The remark by A. Samarin can be seen in L. 140.

⁷ARAN. F. 2. Op. 6. No. 221. L. 30–96: Nikolai Dubinin was appointed as Chief of this laboratory in 1957, in the Institute of Chemical Physics where the Director was Nikolai Semenov (1896–1986; a Nobel laureate in chemistry in 1956). A new department, Department of Biochemistry, was established, and Iosif Rapoport (1912–1990), who had been long purged by Lysenkoites, was invited as Department Head (Soyfer, 2002, p. 850). Concerning Dubinin's life and activities, see: L.G. Dubinina (2006); L.G. Dubinina, I.N. Ovchinnikova (2009), and others.

tive equipment and clothing for the workers working with isotopes and radiation, many laboratories of various ministries and agencies are currently closed by the orders of the State Sanitary Inspectorate⁸.

Furthermore, at a Presidium meeting on December 6, in which a plan about strengthening research activities for the solution of “structural, physical-chemical bases of fundamental biological phenomena” was adopted, Gleb Frank (1904–1976), a leading biophysicist of the time, admitted these dismal situations in his address, pointing out the shortage of the research activities related to electronic microscopes in the Soviet Union and stating: “We are left so far behind in the broad front of research for the analysis of the molecular structures of the living tissue”⁹.

In the Autumn of 1956 elections were held for the post of President of the USSR Academy of Sciences. A prominent chemist and the incumbent President Aleksandr Nesmeianov (1899–1980; president of the Academy in 1951–1961) was the only one candidate and was elected to the presidency for one more term. During the process of the election, in order to nominate a presidential candidate, a general meeting of each Department of the Academy of Sciences was convened. At a Presidium meeting of the Academy on October 12, Topchiev reported about the happening at the general meeting of Department of physical and mathematical sciences: the five leading physicists, Igor’ Tamm (1895–1971; a Nobel laureate in physics, 1958), Mikhail Leontovich (1903–1981), Lev Artsimovich (1909–1973), Grigorii Landsberg (1890–1957) and Petr Kapitsa (1894–1984; a Nobel laureate in physics, 1978) proposed to postpone presidential elections until the Annual meeting of the Academy of Sciences in February of the following year, because a new research institute for genetics with Nikolai Dubinin as its Director was not established yet and A.N. Nesmeianov didn’t have a plan for radical change in biological sciences¹⁰. By doing so, they demanded Nesmeianov to make clear the programmatic course for the improvement of the situation. Although their proposal was rejected in a Presidium meeting, this episode shows the frustration of the leading physicists with the very slow progress of building up the foundation for the radiobiological research in spite of the intensification of the nuclear armament race and the rapid growth of molecular biology at the time.

Such an objection made by prominent physicists might have made some difference. On March 29, 1957, with the aim of making a breakthrough in the fields of radiation biology, biophysics, and chemical and physical research of isotopes, the Presidium of the Soviet Academy of Sciences made a decision to establish a new, large-scale and integrated research center for studies in those three fields¹¹. In discussions for this resolution, Kapitsa enthusiastically appealed to his colleagues in the Presidium, so much so that he declared:

⁸ ARAN. F. 2. Op. 6. No. 263. L. 32. This conference in Paris had totally 1,171 participants. They heard 206 presentations, of which 49 were presented by the Soviet, Ukrainian and Belorussian participants. That number exceeded those from France (33), the United States (31) and the United Kingdom (29). The proceedings of this conference were published (Extermann, 1958). Preceding to this a large-scale conference, “All-Union Scientific and Technological Conference on the Application of Radioactive Isotopes and Radiation” was held jointly by the Academy of Sciences and “Main Directorate on Utilization of Atomic Energy [correctness of that name is doubtful — *Ichikawa*]”. Approximately three thousand participants gathered from totally 1,016 organizations and heard 444 presentations (ARAN. F. 2. Op. 6. No. 244. L. 179, 193). However, until the Paris Conference only one experimental work in laboratory scale for the industrial application of radiation for the sake of polymerization and producing graphite polymer had been put into practice. (ARAN. F. 2. Op. 6. No. 263. L. 32).

⁹ ARAN. F. 2. Op. 6. No. 264. L. 115.

¹⁰ Ibid. No. 231. L. 160–178.

¹¹ Ibid. No. 240. L. 8.

I think that I must bluntly say, entirely unashamedly, that the future war would be decided by biologists, by no one else, if it broke out indeed or not! No physicists can now decide, but biologists will decide what will be the consequence of a nuclear war! We have been timidly left behind here. Yes, we were timid! We must not consider this problem in the same way with others. We need this type of institute for genetics, an institute for radiation genetics. ... We must establish this kind of institute no matter what means we use. We must not dilly-dally like by now¹².

On April 26, less than a month after the Presidium session, the Institute for Radiation and Physical-Chemical Biology of the Academy of Sciences of USSR was founded with a famous biochemist Vladimir Engel'gardt (1894–1984) as Acting Director. The Chief Directorate of Atomic Industry also took part in its foundation, taking charge of the site selection for the institute and also of designing the buildings together with the Academy of Sciences¹³.

The decision to establish the Institute for Radiation and Physical-Chemical Biology, however, was not implemented for more than a year due to the lack of some necessary prerequisites. Engel'gardt gave a speech at the Presidium meeting on May 16, 1958, to discuss causes of the delay, saying:¹⁴

Abnormal situation with working spaces in the institutions of the Department [of Biological Sciences... *Ichikawa*] prevents them from strengthening research activities in the fields left behind in biology and reduces the productivity of institutions. Especially intolerable is the situation with working spaces in the Laboratory for Radiation Genetics and Laboratory for Helminthology. Due to lack of spaces specialized for the use of isotopes and radiation in the institutions of the Department for Biological Sciences the research related with them is not carried out in proper conditions, which repeatedly led to their prohibition by District Sanitary Inspectorate.

Besides this, in the same meeting, V.S. Rusinova pointed out the difficulty in the decision-making in the Department for Biological Sciences. She complained:

Shouldering too heavy burden of obligations onto the members of the Bureau of the Department reflects in the activities of the Department. Usually at a Bureau meeting only half of its members (5–6 people) or sometimes a smaller number are present. ...The today's defect of the scientific and organizational activities of the Department is the lack of major discussions on various important biological problems¹⁵.

Vice president of the Academy, an economist Konstantin Ostrovitianov (1892–1969), however, reminded the Presidium members of “a kind of opposition, as seen symbolically in the various fields of biology, against the new direction in which a wide range of physical and chemical methods must be adopted”¹⁶. It was needless to say that the “opposition” meant maneuvers staged by Lysenkoites.

On January 31, 1958, “the Commission on Radiation Biology”, affiliated to the Presidium, was set up. That commission was consisted of totally 25 members such as the nuclear physicist

¹² ARAN. F. 2. Op. 6. No. 240. L. 79.

¹³ Ibid. No. 243. L. 58–60, 223.

¹⁴ Ibid. No. 277. L. 10–12.

¹⁵ Ibid. L. 54.

¹⁶ Ibid. L. 94.

Anatolii Aleksandrov (1903–1994; later President of the Academy in 1975–1986), the leader of Soviet nuclear development project, Igor' Kurchatov (1903–1960), Nikolai Semyonov (1896–1986; a Nobel laureate in chemistry in 1956), Orbeli, Tamm, Engel'gardt, Dubinin, Gleb Frank and other prominent scientists. The commission was delegated authority to coordinate all the activities related to “the effects of nuclear radiation to living bodies and heredity” and carried out in the Academy of Sciences¹⁷.

II. “Nikolai Dubinin’s Institute”

Besides the Institute for Radiation and Physical-Chemical Biology, another large scientific research center was to be established in the Siberian Branch of the Soviet Academy of Sciences. Its foundation had been already decided at the Presidium session on June 21, 1957. At the same time, Nikolai Dubinin was appointed as its director-organizer¹⁸. He was given a “carte blanche” in selection of staff and choice of research subjects for the new institute. Dubinin recognized well that the new institute with himself as Director was expected to contribute to a rapid development of radiation genetics, saying:

Now as the important subjects are raised in connection with the organization of the Institute of Radiation Biology [correctly — the Institute for Radiation and Physical-Chemical Biology... *Ichikawa*], and so the work on radiation genetics begins to be expanded, which is of great importance for the future of the institute¹⁹.

According to an address in July 1957 by the main organizer of the Siberian Branch Mikhail Lavrent'ev (1900–1980; Vice President of the Academy and Chairman of its Siberian Branch in 1957–1975) at a general assembly of the Academy of Sciences on July 2–6, 1957, convened to confirm the above-mentioned decision of the Presidium on June 21, the Institute for Cytology and Genetics of the Siberian Branch was to hire more than 400 persons in the vast space of 5000 m²²⁰.

Apparently Dubinin and other anti-Lysenko biologists, however, aimed at the rapid development of wide range of new trends in biology. In the Western countries molecular biological study rapidly developed, especially since the publication of a paper by James D. Watson (b. 1928; a Nobel laureate in physiology or medicine, 1962) and Francis H.C. Crick (1916–2004; a Nobel laureate with J.D. Watson, 1962) in 1953, which identified the double helical structure of Deoxyribonucleic acid. Soviet biologists could not just look on that boom with their arms folded. Molecular biology that making full use of physical and chemical methods was beneficial not only for the radiation research but also for the radical change of the situation in the Soviet biology dominated by “the monopoly of the truth” by the Lysenkoite’s doctrine rejecting “material bases of heredity.” In order to catch up soon with the level of molecular biology in the West, a rapid development of a wide range of fundamental research subjects was needed. The scope of his institute with a staff of almost a hundred persons even in its very early

¹⁷ ARAN. F. 2. Op. 6. No. 268. L. 124, 125.

¹⁸ Ibid. No. 248. L. 9.

¹⁹ Ibid. L. 124.

²⁰ Nauchnyi Arkhiv Sibirskogo Otdeleniia Rossiiskoi Akademii Nauk (The Scientific Archive of the Siberian Branch of Russian Academy of Sciences; hereafter NA SO RAN). F. 4. Op. 1. No. 6. L. 27.

days could not satisfy Dubinin²¹. He complained at the first general assembly of the Siberian Branch held on May 15–19 of 1958; “It seems to me that we cannot be satisfied with the existing organization of works on biology”. He continues:

The Presidium of the Siberian Branch, making a progress in the task of creating the profiled biological institutions, exchanged the opinions with the Department for Biological Sciences of the Academy of Sciences of the USSR. Eventually the Department issued the proclamations to build ten new biological institutes in Siberia. ... Today, the problem of heredity, and then, biology as a whole are going through a remarkable period. Molecular bases of heredity were revealed as nucleic acid and there is every reason to believe that the nucleic acid is the compound related primarily with the phenomenon of heredity²².

The structure of his institute reflected such an overall interest covering every field of biology. According to the report dated December 12 of 1958, the institute consisted of totally six divisions and 23 laboratories:

I. Within the Division of physical, chemical and cytological basics of heredity — totally five laboratories:

1. Laboratory of cytological basics of heredity;
2. Laboratory of nucleic acid and nucleoprotein;
3. Laboratory of micro-spectrophotometry and electronic microscopy;
4. Laboratory of cell embryology of plants;
5. Laboratory of scientific micro-cinematography.

II. Within the Division of general and radiation genetics — totally six laboratories:

1. Laboratory of general genetics;
2. Laboratory of population genetics;
3. Laboratory of radiation genetics;
4. Laboratory of cytogenetics;
5. Laboratory of polyploidy of plants and animals;
6. Laboratory of general genetic methods for selective breeding.

III. Within the Division of genetics and cytology of plants — totally three laboratories:

1. Laboratory of radiation breeding and experiential mutations;
2. Laboratory of heterosis and hybridization;
3. Laboratory of cytology and apomixes.

IV. Within the Division of animal genetics — totally four laboratories:

1. Laboratory of individual genetics and cytology of the animals;
2. Laboratory of hybridization and heterosis in animals;
3. Laboratory genetic foundations of breeding animals;
4. Laboratory of ecological genetics of animals.

V. Within the Division of genetics and cytology of cancer — totally two laboratories:

1. Laboratory of genetics of cancer;
2. Laboratory of cytology of cancer cells.

VI. Within the Division of genetics and cytology of microorganisms and viruses — totally three laboratories:

²¹ In the beginning of 1958, 101 staff members were enrolled in the institute, which was 400 square meters in area. And the scale of the institute was planned to be doubled in the following year (NA SO RAN. F. 10. Op. 3. No. 6. L. 9, 10).

²² Ibid. L. 171, 172.

1. Laboratory of genetics and cytology, electronic viruses and phages;
2. Laboratory of cytogenetics fungus;
3. Laboratory of genetics and cytology of bacteria²³.

III. Interference by Lysenkoites and “Nikolai Dubinin’s Institute”

1. Lysenkoites’s interferences

The persistent harassment and interferences by the Lysenkoites against the anti-Lysenko biologists are already well-known by the witnesses of the involved persons (Lavrent’ev, 2000, p. 149–152; Dubinin, 2000, p. 228–229). Even after his dismissal from the post of President of All-Union Academy of Agricultural Sciences named after V.I. Lenin (hereafter — VASKhNIL), Lysenko did not stop urging political authorities to restrain his opponents from gaining power in biological sciences²⁴.

Immediately after his group’s restoring its relationship with high political authorities in the Spring in 1957, Trofim Lysenko sent a letter dated April 19 to Aleksandr Nesmeianov. In it, he condemned “the situation in which scientific research activities that are carried out or are to be carried out with the application of isotopes and nuclear radiation, I don’t know why, are now conducted by outsiders of the Institute of Genetics”. He demanded that Nesmeianov should “remove the fictitious leaders away”²⁵. He also said: “In the Institute for Genetics, genetic studies on radiation effects are well organized. They are being carried out on the basis of Michurinist biology”²⁶. On October 8–14, his institute held a large-scale scientific conference, gathering a total of 375 participants from 250 scientific organizations and higher education facilities. In it, Nikolai Nuzhdin (1904–1972), Lysenko’s right-hand man, delivered a speech, proclaiming that “The chromosome theory and the gene hypothesis turned out to be bitterly contrary to the materialist view”²⁷.

A corresponding member of VASKhNIL, Professor I.S. Sizov from All-Union Institute for Plant Breeding sent his letter dated August 7 of 1959 to the editorial board of the party’s organ, *Pravda*. In this letter Sizov expressed his doubts about the reason for establishing the Institute for Cytology and Genetics of the Siberian Branch of the Academy of Sciences, saying:²⁸

²³ NA SO RAN. F. 10. Op. 3. No. 20. L. 9, 10.

²⁴ For example, T.D. Lysenko protested against the personnel change in the editorial board of the bulletin of the Academy’s Department of Biological Sciences, having sent his letter dated June 14 of 1956 to the Head of the Section of Science of Party’s Central Committee, Vladimir Kirilin (1913–1999) and, subsequently, another letter dated July 5 to a Secretary of the Central Committee, Mikhail Suslov (1902–1982). And then, on November 21, the scientific council of the Academy’s Institute of Genetics criticized a scientific paper by a cytologist and microbiologist, Dmitrii Petrov (1909–1987), titled “To the Problems on Material Basis of Heredity” published in the journal, *Obshchaia biologii* (*General Biology*), and made a decision to send the materials to the Typographical Office of the Party’s Central Committee (ARAN. F. 201. Op. 1. No. 279. L. 38–40, 49).

²⁵ ARAN. F. 201. Op. 1. No. 284. L. 8: The contents of this letter was recorded here.

²⁶ Ibid. No. 307. L. 16.

²⁷ Ibid. No. 305. L. 1–3: As a maneuver, or perhaps in triumph, the conference organizers invited a number of anti-Lysenko biologists such as Nikolai Dubinin and Ivan I. Shmal’gauzen (1884–1961), their sympathizer Petr Kapitsa, some philosophers including Mark B. Mitin (1901–1987), Aleksandr Maksimov (1890–1976), and Abram Deborin (1881–1963) among others (Ibid. L. 38, 39).

²⁸ NA SO RAN. F. 4. Op. 1. No. 62. L. 24, 25.

Is it appropriate to disperse in such a way the efforts on genetic and cytogenetic studies. Would it be better to concentrate all the work in the Institute of Genetics of the USSR Academy of Sciences? There arose an impression that some individual workers of the Biological Department of the USSR Academy of Sciences apparently didn't like the Michurinist direction in genetics conducted by T.D. Lysenko and then the second Institute was established in the opposite direction in science in Novosibirsk.

Having received his letter, the editorial board of *Pravda* referred to Lavrent'ev, Chairman of the Siberian Branch, for the answer to Sizov. Lavrent'ev sent his reply dated September 25 directly to Sizov. In his reply in the first place Lavrent'ev called Sizov's attention to the particular position of the Siberian Branch that unlike other local organization (*filial*) in the Siberian Branch any research subject is not restricted to the local issues. And then, he evaded Sizov's question with the help of formal logic on the procedure, saying:

The final decisions on the structures and the directors of the institutes are adopted on the recommendation of the related department and the general assemblies of the Academy of Sciences of the USSR and approved by the Government. The biologists and the experts in the related fields of science believed the establishment of the Institute of Cytology and Genetics appropriate²⁹.

2. "Commission on Biology" of Central Committee of the Party

Lysenko could not look unconcernedly at the rapid expansion of "Dubinin's Institute" in Siberia. He wrote to Nikita Khrushchev and demanded him to interfere in biological sciences. Eventually a commission composed of some leading Lysenkoites like A.G. Utekhin (Head of the Scientific Section of the Department of Agriculture, the Party's Central Committee), Mikhail Ol'shanskii (1908–1988; later, the USSR Minister of Agriculture in 1960–1962), Nikolai Nuzhdin and others was set up under the name of "Commission on Biology" by the Party's Central Committee in January 1959. This commission was dispatched to the academic city, Akademgorodok near Novosibirsk in order to interrogate the leadership of the Siberian Branch on the matter related with biological sciences. That mission visited some Bureau members of the Presidium of the Siberian Branch like Lavrent'ev, Timofei Gorbachev (1900–1973; a metallurgist, Vice Chairman of the Siberian Branch in 1957–1972), Andrei Trofimuk (1911–1999; a geologist), Nikolai Dubinin himself and others. Here, let's take a look at the stenographic note of their meeting, which was kept in the Scientific Archive of the Siberian Branch³⁰.

As soon as the meeting discussed the main subject, Ol'shanskii said,

The Commission considers the genetic direction not much successful and it is not fruitful to teach young people in detail that there are two approaches³¹ to the solution of biological issues, as confirmed officially. And the Commission does not share the approach seen in and around this Institute as a principle. ...It is not proper to entrust biology exclusively to only one possible direction³². Such a direction cannot be considered sufficiently promising to further progress of science (L. 3)

²⁹ NA SO RAN. F. 4. Op. 1. No. 62. L. 21.

³⁰ Ibid. F. 10. Op. 3. No. 59. L. 1–13. Hereafter, concerning the citations from this file, only the sheet number (L.) is indicated after each remark in brackets. Concerning to this mission, also see: Lavrent'ev, 2000, p. 149–152; Dubinin, 2000, p. 228–229.

³¹ Lysenkoites' "Michurinist agronomy" and the molecular biological methods of genetics approved by Dubinin and others.

³² The molecular biological methods of genetics.

The oddest thing here is that the Lysenkoites, very often considered to be seekers of “monopoly of scientific truth,” demanded breakdown of monopoly in scientific research, shutting their own eyes to their own behaviors. Lavrent’ev quickly asked back, “Does that mean — strengthening the other approach of science [“Michurinist biology” — *Ichikawa*]?” (L. 3). Ol’shanskii soon replied: “Yes.” (L. 3) Lavrent’ev’s following remark was a sort of maneuver: “Here, the point is that here is very small and we do not have yet the necessary space. ... It is needed to help us so as that the persons having another direction can smoothly settle in their works after coming here” (L. 4). Gorbachev covered Lavrent’ev: “All the doctors you recommended, we adopted” (L. 4).

No sooner than Nuzhin remarked: “There are two directions. And I have some sympathy for each of them” (L. 5). Trofimuk replied: “But each of them has different labels” (L. 5). The Siberian Branch member showed a feeling of antipathy against the idea, “pluralism of scientific research”, raised by the Lysenkoites. Lavrent’ev shows a sentiment, remembering the formidable days at the beginning of the Siberian Branch of the Academy of Sciences:

The establishment of a scientific center in Novosibirsk had been considered as the most harmful attempt in many ways. The young persons were persuaded not to come here. We had great difficulty in securing the necessary persons. I would like to frankly tell you when A.N. Nesmeianov told me about the conversation with Nikita Sergeivich. He said: ‘No one will go to you.’ A. V. Topchiev was also present at this conversation. This conversation worried us so much. Having taken the advantage of this conversation, you censured us, as if you fingered a wart (L. 6).

A plant philologist, Pavel Genkel’, a Commission member, summarized their demands:

No one is prepared to remove the director from his position. You have to work. Our task was not to make decisions. We had to be familiar with the directions³³. These directions go against the Michurinist directions. There are working here 112 people (some in Moscow and Khar’kov). However there is no aggressive comrades standing on Michurinist direction...³⁴ It does not sound good, although not the worst, that Nikolai Petrovich [Dubinin — *Ichikawa*] is concentrating all his efforts to only one direction” (L. 10).

Utekhin covered Genkel’: “We therefore call on the workers in the Institute of Cytology and Genetics more quickly obtain the necessary production results” (L. 10). They meant that they would like to share the new institute in the Siberian Branch by obtaining some stage for their activities there and, if the institute had allowed them to develop the methods for improvement of productivity in agriculture, based on “the Michurinist methods”, they should not request the dismissal of Dubinin from the post of Director of the institute.

Ol’shanskii was, however, more radical. He demanded an overall change of direction of the institute: “I said that the direction of the Institute stands on a methodologically incorrect positions, including all the results caused by that direction” (L. 10). In opposition to this, Lavrent’ev emphasized diversity of the scientific methods: “What does it mean ‘methodologically incorrect?’ ... The sugar beet — to increase the output of sugar, are they approaching correctly to this issue? Or it is possible to do it another way, isn’t it?” (L. 10, 11). Ol’shanskii replied: “We cannot say that crap what is made by idealists is all absurd. But, it is needless to say, the science based on the materialist method certainly would be more fruitful” (L. 11). After Lavrent’ev’s further persuasion, Ol’shanskii at last answered in affirmation: “We don’t deny none of the ways that benefits” (L. 11). And then he kept silence after this remark.

³³ Directions of the Institute of Cytology and Genetics.

³⁴ This remark is contradictory to the former remark by Timofei Gorbachev, “All the doctors you recommended, we adopted”.

Dubinina tried to put an end to this theatrical dialogue: "I am pleased that Comrade Utekhin does not support the view point of Academician Ol'shanskii, i. e. the opinion that the Institute should be closed. It means that our work must continue. And all your comments we will consider" (L. 12). Lavrent'ev covered him: "After the 21st [Party's — *Ichikawa*] Convention we will reconsider all thematic plans". Utekhin made a concluding remark, again emphasizing "pluralism in scientific research", saying: "The Institute needs to take four or five major subjects: one for Director, one for his Deputy and the others are to be shared among the Departments heads and has to make the results of the works observed and put these tasks under daily control" (L. 12).

Conclusion

If we see to the downfall of the Lysenkoites', hegemony is a necessary result of "de-Stalinization of the Soviet science" in general. This seems somewhat simplistic. We must take into consideration the context in which the research on "radiation effect on living bodies" came to obtain major significance in the Soviet Union in those days. As the nuclear weapons race between the Soviet Union and the United States intensified from the mid-1950s, that research had to become the main research target for both of "Super Powers". This relationship between science and the Cold War was a self-evident truth for the physicists involved in any nuclear research project, whether it may be of military purposes or peaceful purposes. In addition to this, there was an indigenous context in the Soviet Union in which the radiation study necessarily gained major importance, due to the radiation exposure incidents which repeatedly occurred in the nuclear development facilities like Chelyabinsk-40 and "the East-Ural radioactive trace" that happened in September 1957 (Ichikawa, 2015). A book edited by a medical doctor, the Soviet chief representative to the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), Andrei Lebedinskii (1902–1965), titled *Soviet Scientists on the Danger of Nuclear Weapon Tests* (M.: Atomizdat) and published in 1959 (its English version in 1960), condemning the optimistic way of evaluating the radiation effects on human bodies in the recommendations by the International Committee for Radiation Protection, reveals their own original achievements of the research in this field (Lebedinskii, 1959). Igor' Kurchatov contributed the introduction (ibid, p. 3–5), Nikolai Dubinin — a paper titled "Radiation and the Human Heredity" (ibid, p. 82–89), and Andrei Sakharov (1921–1989; a physicist, a Nobel Peace Prize laureate, 1975) — his paper titled "The Radioactive Carbon Created by the Nuclear Explosion and the No-threshold, Biological Effects" (ibid, p. 36–44)³⁵.

The minutes and the stenographical records of the Presidium meetings tell us how serious and important leading scientists regarded the radiation study. They expected anti-Lysenkoite geneticists and biologists to make a rapid progress in this field³⁶.

At the same time, it must be taken into consideration that almost simultaneously the molecular biology developed rapidly across the world. Dubinin and other biologists were pressured to make a breakthrough for catching up with the rest of world in a wide range of basic

³⁵ Andrei Lebedinskii confessed at an enlarged meeting of the Commission on Radiation Biology affiliated to the Presidium of the Academy of Sciences on July 11th, 1958, that almost all experimental data concerning the genetic effects of radiation were obtained from only the works conducted by Nikolai Dubinin, Solomon Ardashnikov (1908–1963), Nikolai Shapiro (1906–1987) and their colleagues (ARAN. F. 1522. Op. 1. No. 159. L. 6).

³⁶ In spite of such efforts, the Presidium of the Academy of Sciences had to again point out the serious delay in radiation biology. (ARAN. F. 2. Op. 6a. No. 198. L. 8, 9).

research in this new field of science. “The Dubinin’s Institute” thus became a huge-scale scientific organization treating a big variety of research subjects related with molecular biology, not limited to the radiation effect study. Such an expansion of research subjects makes the original purpose of the establishment of the Institute (rapid development of radiation effect study) somewhat hard to see. Eventually molecular biology was placed in the Party’s new Program adopted at the 22nd Convention. Subsequently, on May 11, 1962, the Academy’s Presidium set up a large-scale scientific board consisting of 68 members with Engel’gardt as Chairman for the policy making for the further development of molecular biology³⁷.

Zhores Medvedev (1969) connects the Lysenkoites’ hegemony with the history of the Soviet agriculture. Such a point of view is, no doubt, reasonable. It must be, however, also considered that the Postwar Soviet Union was directly involved in the Cold War, and Soviet scientists were required to make contributions to the preparations for a possible war³⁸. In such circumstances, a “monopoly of scientific truth” by Lysenkoites must have been trivial. Lysenkoites themselves must have realized this well. It is noteworthy that although Lysenkoites harassed other scientists with their persistent attacks against the foundation of another scientific center independent from their research centers in order to maintain their dominance in biological sciences, they did not oppose the development of radiation effect studies. Ironically, they tried their entry into the biological study on radiation effects and justified their interest and interference under the name of “pluralism in scientific research” to shield their genuine intentions.

Here let us see how the matter developed: on January 9, 1963, a joint meeting of the Central Committee of the Communist Party and the Council of Ministers of the USSR issued a proclamation titled, “On the measures for the further development of biology and the reinforcement of its linkage with the practice”³⁹. Subsequently on February 1, a joint conference of the Presidium and the Department of Biological Sciences of the Academy of Sciences was held. In its resolution the joint conference evaluated highly “the Michurinist direction” in biology and adopted totally 135 research subjects most of which were based on “the Michurinist agronomy”. Six of them were to be carried out by Lysenko himself and his close comrades⁴⁰. The representatives from various research institutions reported about the positive results by application of “the Michurinist directions” on the platform one after the other during the conference lasted for four hours⁴¹. In his concluding remark, President of the Academy, Mstislav Keldysh (1911–1978; President in 1961–1975) emphasized the importance of “pluralism in scientific study”, saying: “It seems to me that the discussion here vividly demonstrated the more diversified are the objects in the living world which we make use of, the more diversified are the methods utilizing them and the approaches to their research”⁴². That remark was all he could make to

³⁷ ARAN. F. 2. Op. 6a. No. 197. L. 13, 21.

³⁸ At the same time, the leading scientists were also eager to secure “freedom of research” from the political authority and tried to bind these two aspects together. At the above-mentioned Presidium meeting on December 6 of 1957, Petr Kapitsa also said: “And so it seemed to me that the experience at Cambridge, Oxford and other universities where researchers are able to speak freely is needed to apply so as to solve such problems [study on radiation effects — *Ichikawa*]. I think that we can organize a club where people gather and talk, however, it [the solution of the problem — *Ichikawa*] can be done only when people freely exchange opinions. We do not have such free communication. We are closed in their institutions, and see others only at meetings, where if you can talk, the speakers usually interfere”. (ARAN. F. 2. Op. 6. No. 264. L. 132)

³⁹ ARAN. F. 2. Op. 6a. No. 204. L. 10.

⁴⁰ Ibid. No. 10. L. 27–83.

⁴¹ Ibid. No. 434. L. 159–302.

⁴² Ibid. L. 298.

show his resistance against the “monopoly of scientific truth” by Lysenkoites. Even talkative Kapitsa kept his silence for four hours. Dubinin also did so. Another person that kept silent was Lysenko himself⁴³. The downfall of Lysenkoites’ hegemony was, then, not so straightforward.

The author thanks Dr. Tsuyoshi Fujioka (Dōshisha University) and Dr. Yakup Bektas (Tokyo Institute of Technology) for their support.

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⁴³ ARAN. F. 2. Op. 6. No. 434. L. 159–302.

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Против гегемонии лысенкоистов: создание Института цитологии и генетики в Сибирском отделении Академии наук СССР

ХИРОШИ ИЧИКАВА

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Никита С. Хрущёв (1894–1971), который столкнулся с серьёзным кризисом в советском сельском хозяйстве, надеялся преодолеть его с помощью «лысенковской агрономии», предлагавшей множество дешёвых методов для повышения урожайности растений и производительности в животноводстве. Тем не менее в Сибирском отделении Академии наук СССР Институт цитологии и генетики во главе с Николаем П. Дубининым (1907–1998) был учреждён как раз в 1957 г., когда Лысенко вновь получил поддержку со стороны высшей власти. В статье обсуждаются причины, почему стало возможным одновременное существование столь противоположных феноменов: гегемония лысенковцев и учреждение «Института Н.П. Дубинина»? Этому, конечно, способствовал важный организационный аспект. Институт цитологии и генетики Сибирского отделения Академии наук СССР был учреждён Академией наук, официальной государственной организацией, хотя и обладавшей высоким уровнем автономии. Организация и деятельность самого Института напрямую контролировались Сибирским отделением Академии наук, которое в свою очередь пользовалось значительной автономией уже от Президиума АН СССР в Москве. Для выяснения причин временного совпадения господства лысенкоизма в биологических науках и учреждения «Института Дубинина» автор анализирует протоколы и стенограммы заседаний Президиума Академии в Москве и документы Сибирского отделения в Новосибирске. Обращено внимание на то, что во второй половине 1950-х годов при интенсификации холодной войны между Соединёнными Штатами и Советским Союзом, особенно в связи с рядом испытаний водородных бомб, проблема воздействия радиации на живые организмы стала ключевой, военно значимой в биологических науках. К тому же в генетике и биологии в целом в это время интенсивно развивались молекулярные исследования. И это не могло не стать главным аргументом со стороны видных физиков и биологов, связанных с оборонными, особенно ядерными проектами, на заседаниях Президиума Академии наук.

Ключевые слова: лысенкоизм, холодная война, генетика, молекулярная биология, советские учёные, Академия наук СССР, Институт цитологии и генетики, Институт общей генетики.